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P R O C E E D I N G S

of the

SELECT COMMITTEE APPOINTED BY THE ONTARIO LEGISLATURE  
TO ENQUIRE INTO CERTAIN MATTERS AND LEGISLATION  
REGARDING SMOKE CONTROL AND AIR POLLUTION IN ONTARIO.

Mr. A. H. Cowling, Chairman.

Dr. F. A. Evis, Secretary.

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VOLUME XXXVI

Friday, October 26th, 1956,

NEW YORK, N.Y.

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R. C. Sturgeon,  
Official Reporter,  
Parliament Buildings,  
Toronto, Ontario.







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T H I R T Y - S I X T H   D A Y

Yonkers, New York,  
Friday, October 26th, 1956,  
9:30 o'clock, a.m.

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The further proceedings of this Committee  
reconvened pursuant to adjournment.

Mr. A. H. Cowling, Chairman,  
Presiding.

PRESENT:

Hon. Mr. Kelly,  
Messrs. Morningstar,  
Elliott,  
Murdoch,  
Gordon,  
Macaulay, Q.C.,  
Dr. F. A. Evis, Secretary.

APPEARANCES:

Mr. H. A. Belyea,	Chief Air Pollution Officer, Metropolitan Toronto.
Dr. P. W. Zimmerman,	Chief, Boyce Thompson Institute, New York.
Dr. A. E. Hitchcock,	Plant Physiologist, Boyce Thompson Institute, New York.





Dr. George McMew,      Managing Director, Boyce  
                                 Thompson Institute,  
                                 New York.

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---These proceedings were held at the Boyce Thompson  
Institute, 1086 North Broadway, Yonkers, N.Y.

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THE CHAIRMAN: Dr. Zimmerman, we are an all-  
Party Select Committee appointed by the Ontario Legis-  
lature to enquire into all matters concerning smoke  
control and air pollution and to report back to the  
Legislature at its next regular session.

We have visited a number of localities and  
are here now to confer with you and to secure what  
information you may care to give us.

DR. ZIMMERMAN: Your principal line of attack  
is to size up our situation and see what you hare  
headed for in Canada?

THE CHAIRMAN: That is right. We should like  
to get some solid evidence which would interest the  
farm representatives in the House. I think up to now  
the rural people think, "Well, this is none of our  
business; let the city people take an interest in it and  
pay for it".

If we had some evidence to show that farmers  
around the cities are being hurt by their properties  
being damaged, and so on, it would be very helpful.





DR. ZIMMERMAN: I think perhaps I ought to tell you what Dr. Hitchcock and I have been doing, and the present progress, to give you an idea of the line of attack we have here, and what you can hope to see.

We started away back in 1920 on the effect of air pollution, principally associated with illuminating gas, or similar gases, particular from breaks in mains, and there are places where streets were damaged, and we had to find out what were the active ingredients in illuminating gas that caused such a condition.

Then we had a sizeable amount of work on the minimum concentrations of these active ingredients in illuminating gas. There were traces of unsaturated hydrocarbon which did a great deal when applied to plants.

At the present time the situation is a little different, because they use mostly natural gas now, and natural gas is not like the manufactured gas. Supposedly, natural gas has no unsaturated elements in it, whereas the manufactured gas sometimes has as much as 11% illuminants, of which 3% may be ethyl gas, which is very effective when applied to plants.





The Parks Commissioner in New York used to regularly collect from the utility companies.

Then, along came the natural gas, but they are inclined to keep up their complaints. When they have a tree die, they still blame it on the illuminating gas, or maybe natural gas which may not have any toxic constituents.

At the present moment it is really a fairly active problem, so we are renewing our interest in natural gas versus manufactured gas,.

Many times we found in the past that, when applied to plants, natural gas did not seem to affect them as the older manufactured gas did. There comes a time when there is not enough natural gas for the large number of consumers, and when industry is injected into the picture they have to supplement it with manufactured gas, and that brings in the problem again.

It is up and down as far as their supplement is concerned, so we have that in view again.

That is not our major problem. There are various industries throughout the country which liberate various pollutants about which they know,



and they have paid for in lawsuits, or bills paid prior to lawsuits. One of them is a compound, or several compounds, associated with the aluminum industry, of which we have three or so, and two are our sponsors.

We have eighteen sponsors altogether . They come from all over the world; at least one is in Switzerland: most of them are from the United States, and two from Canada.

THE CHAIRMAN: I did not realize that Canadian companies were sponsoring this project.

DR. ZIMMERMAN: They are interested from the fluoride angle.

THE CHAIRMAN: You mean they support this Institute in a financial way?

DR. ZIMMERMAN: They give a voluntary contribution to the Boyce Thompson Institute, which is in a way just a grant for certain types of work, the idea being that they want the facts, and they will govern themselves accordingly.

We are not trying to protect industries, farmers or anyone else; we are just trying to get at the facts associated with emanations from the factories.

There are two "aluminiums" - regardless





of how the word is spelled or pronounced when it reaches the laboratory it is aluminium. I think the one was actually started by the Aluminum Company of America, and then we had this lawsuit which occurred later, and the Government here forced the Aluminum Company of America to give that up.

DR. EVIS (Secretary); It is now the Aluminum Company of Canada, is that the idea?

DR. ZIMMERMAN: Aluminum Laboratories Limited. It is at Arvida, Quebec, and it has in fine print, "Incorporated in the Dominion of Canada".

THE CHAIRMAN: Have you ever done any work for the International Nickel Company in Sudbury?

DR. ZIMMERMAN: We have never actually done any work. I know of them. Doctor Katz is a friend of ours; he is up in your area. He first came in down here in connection with the trial of a lawsuit which occurred one time in Canada, and we worked with Doctor Katz, and several of us here supported the Canadian claims. I testified for Trail Smelter in the last lawsuit - which would disgust some of our American friends; but we were there also





simply conducting experiments, finding the facts, and reporting what we found.

DR. EVIS (Secretary): I think the Chairman would like to know whether it would be worthwhile for some of our Committee to go out and see that Trail Smelter, in connection with what the International Nickel Company is doing at Sudbury. They are putting out a lot of  $\text{SO}^2$  at Sudbury and claiming that they cannot correct it, or it is not economical to correct it, and so on.

The process is different at Trail, they are still putting out  $\text{SO}^2$  and I imagine there will be a solution somewhere.

DR. ZIMMERMAN: Well, you have eventually an international committee. We have people come in from Belgium, Canada and America so that you are represented there.

DR. EVIS (Secretary): The arbitrators.

DR. ZIMMERMAN: There is a better word than that. They actually acted as a jury and listened to the various witnesses, and finally, with the help of advisors, drew up the requirements for the Trail Smelter, - how much  $\text{SO}^2$  they could liberate within a given period of time. It is pinned down now to the point where I think it is



.3 parts per million that can be liberated during the growing season.

Now they have become interested in more than the production of copper; they have fertilizer interests, and half of their money comes from some of the things they had to reclaim. The Nickel Company could probably put themselves in a no less enviable position if they were to work on it.

In a general way, that is the history of all these companies. They have found they were liberating more than could be tolerated by certain areas; they started recovery, and sometimes they reclaimed material that went into fertilizer or other important types of work; and sometimes the "tail wags the dog."

We have all heard of this copper industry down in Tennessee, where they just devastated the areas around; so finally they were pinned down to recover some of these pollutions, and now they have a great fertilizer industry. Sometimes they have to pay a neighbouring farmer; I think last year they paid a total of \$37.50. And that, as compared with millions of dollars of damage in the beginning. So it can be corrected and can





be brought down so that industry and the people can live together.

One of our major interests is to help the industries find out how much they have to recover<sup>and</sup> what they can put out and still not interfere with the neighbours.

THE CHAIRMAN: Have we an Institute comparable to yours in Canada?

DR. ZIMMERMAN: Well, I would say that the Canadian Research Council is doing practically the same thing. Doctor Katz made a summary of most of the stuff that occurred in connection with that lawsuit, and it is in book form up there. Doctor Katz has entered into many different types of litigation as well as research.

I think that his group - I knew quite a number of them at one time - did some creditable work. He also worked on natural gas at one time, and I think he made a report on natural gas.

The nearest approach to our works is that of the Canadian Research Council.

To continue this other story: now we have, in addition to the aluminum companies in this country, other industries --

MR. MURDOCH: Do you do any work here





besides work connected with air pollution and its effects?

DR. ZIMMERMAN: We have done quite a bit of growth regulators. 2,4-D was developed right here in this laboratory.

Not only herbicide; we have been interested in growth regulators that affect plants in any way.

MR. MURDOCH: You deal with all plants, - fruits, vegetables, and so on?

DR. ZIMMERMAN: That is right. We grow some fruit trees, for example, in buckets; small, it is true, but we get information that way. We have plots which you will see outside, and we have these portable houses. We plot over them and fumigate right in the field, and it is done under field conditions; and we also have potted plants. In the winter time we have to use potted plants entirely.

MR. BELYEA: Should we study the effects of pollen in fly ash pollution? Should that be included in our study?

DR. ZIMMERMAN: They usually have a special commission, you might say, which handles the pollen. It is important in a number of things,



such as health hazards concerning the people who are allergic to various kinds of pollen. They have meetings here regularly every year in connection, at least, with Weed Control Confernces.

This happens to be the north-eastern section.

They hold a meeting here every January. One section of that has entirely to do with the control of pollen-bearing plants which are objectionable. Ragweed, of course, is practically the number one plant.

They have boosted a co-operative project. New York City cannot do anything unless adjacent areas co-operate. It is like going out in the middle of a large acreage and taking care of one acre of ragweed, - killing or controlling. All you have to do in that case is to prevent the formation of the flowers. You do not necessarily have to kill the ragweed.

There has been quite a bit of work around New Jersey, Long Island and Westchester County. In other words, they have had, over a period of years, large programs for controlling ragweed, for example. They automatically deal with other weeds also, but they are mainly after ragweed, which comes into flower here about





August 1st, so they start during the summer, and they have most of the summer to carry out the program.

And then they have the pollen counts, and they attempt to show some reduction in the pollen count due to this weed control program. But I am thinking now of just the ragweed.

I would suggest that you obtain copies of "The Fluorine Problem in Livestock Production", a report on animal nutrition, National Academy of Science, publication 381, dated September 1955. I think the cost is \$1.00 per copy.

The Utah Committee is preparing a new statement for the Legislature. They are trying to have a printed pamphlet for the Legislature which meets in January. I believe in the past, also, about four years ago, they had a printed pamphlet for their Legislature. They asked questions and then answered. You can get that by writing D. A. Greenwood.

THE CHAIRMAN: This Utah Committee is a legislative committee?



DR. ZIMMERMAN: A legislative committee for Utah, and it is made up of university people and some laymen; and I think they are going to get some financial support from the Legislature.

They had a committee out there on air pollution. Their problem results largely from the industries in Salt Lake Valley. There is the American Smelting and Refining at the north end, right near Salt Lake, and then down below, towards Provo, there are brick factories which are always liberating fluorides and  $\text{SO}_2$ ; and they have several other industries down near Provo where United States Steel operates the Geneva Division - that is the name of the operation - and they smelt a type of ore which comes, I think, from California, which has a high percentage of fluorine in it.

They operated it for many years before they knew they were polluting the air with fluorine.

Greenwood, even before he knew that, was interested in fluorine as a compound. He works out all the literature, and has a lot of information about fluoride.

They then got in deep water, because the rock which they smelted had as much as 3%





fluorine in it, and they liberated hydrofluoric acid. It breaks down into silica tetrafluoride and fluo silica, which are very effective compounds when put in the air.

So they sponsored that large project, and the same with the Aluminum Company of America and Aluminium Laboratories Limited.

Of the different types of industries which are involved with fluorine, practically all are fertilizer plants, where the process liberates fluoride in some form or other, starting from rock which has about 3% fluoride in it, and when it is heated, as it is in some places, or is treated with sulphuric acid to make sulphur phosphate, and a certain amount of fluoride is liberated.

THE CHAIRMAN: How many fertilizer companies are sponsors?

DR. ZIMMERMAN: Three, I think. I can think of Tennessee Corporation, Armour used to be. Tennessee Valley Authority and International Minerals. Also Royster Guano. So there are five or six fertilizer industries. Another group is interested in steel, fertilizer and oil. The American Petroleum Institute may have twenty or thirty members, so they go in as a whole group.



These are the four principal industries that are involved, and they are involved particularly because of the fluorine problem.

The American Petroleum Institute does not have much of a fluoride problem, but they do sponsor research. When they sponsor this they are sponsoring research, and they understood from the first that we may uncover a great deal of information which would be detrimental to their cause so far as paying. But that is not the point. If they owe something they are going to pay it; and that has to be the attitude they all assume. We are not trying to win lawsuits; we are not in that game at all, and wherever it hits, that is all right with us.

Actually hardly anyone, as an individual, owns an industry any more. The people own them, and the officers are trying to control them in some rational fashion.

THE CHAIRMAN: Do they contribute towards your organization?

DR. ZIMMERMAN: No, they contribute towards a project here. The whole organization is the Boyce Thompson Institute.

We were approached by a certain





committee of different industries, and after going over the whole field. -- we being in pollution work on our own--they asked us, and we agreed, to conduct research involving the effect of fluorides on plants.

We have nothing to do with animals. There is another place where they do that.

These same industries sponsor projects on the effect of fluorides on animals.

In 1950 we started building portable greenhouses to get together equipment which could be used for fumigating plants in these greenhouses. We set up new equipment in the greenhouses which could be heated, so we could work throughout the year, and by next February we will have completed six years on that problem.

MR. MURDOCH: Do you do any projects in connection with fluorescent lighting?

DR. ZIMMERMAN: Yes. Dr. Arthur does. It is not part of our program, but he has been working on it a long time, and it is being used in a small way by a number of people, mainly for use in basements.

MR. MURDOCH: I notice that General Electric in Canada is working on that, and I



predict myself quite a future for it when they can grow plants and flowers in the winter time in the basement with fluorescent lighting.

DR. ZIMMERMAN: Yes. General Electric used to work with Dr. Arthur, and they developed an insulated greenhouse, and finally went into other problems because they could not use ordinary mazda lamps alone. They have no blue in them, and they went into other phases of it. But that is an important project.

MR. BELYEA: Is your method of fumigating plants the same as they use for animal experiments?

DR. ZIMMERMAN: No.

MR. BELYEA: Are they satisfactory?

DR. ZIMMERMAN: The only thing they do with the animals is to feed the hay which grows around industry, or they feed rock phosphate for fluorine , containing compounds, to the animals. At one time fine ground rock phosphate was fed as a supplement to animal food, and John used to grind it up and sell it as a substitute for plant food. He finally ran into the fluorine problem. He got out of it early. Since that time they have used sodium fluorides and quite a number of other





things.

One of the things which we hope will come to pass is to weed out false claims and give the facts.

Cattle can tolerate so many milligrams per killowatt of body weight. The calves can tolerate less than the grown cattle. You can feed steers 100 parts per million for a considerable period of time, without finding any effect. If you feed more than 30 parts per million to calves they develop lesions on the feet and have bone sclorosis and the like.

MR. BELYEA: Do you fume the plants with the atmospheric dispersed material?

DR. ZIMMERMAN: Yes. I think we had better take you out to the field so that you can see the fumigation equipment. We are just about through outside. When it gets cold we have a different problem. We cannot grow the plants, but the portable greenhouses are just set out over plots. We cannot use them in the cold weather.

DR. EVIS: (Secretary): We did not actually see this in Los Angeles; we did not have a chance to get out to Dr. Melvin's set-up; but we have heard



that they have, for instance, two greenhouses with identical plants, identical soil, and everything the same throughout, except that the one has purified air and the other has Los Angeles air.

DR. ZIMMERMAN: By "purified air" do you mean -----?

DR. HITCHCOCK: Filtered.

DR. EVIS (Secretary): And the Los Angeles air plants were normal if you looked at them individually, but compared to the other plants they were smaller, and the fruit was smaller, and so on. There was no specific damage visible on the leaves, but the plants and fruit were smaller. Have you anything like that which the Committee could see here?

DR. HITCHCOCK: We could have given you bushels of them last summer, but you see you are around in a winter climate. We have to specialize in the summer time.

DR. ZIMMERMAN: We are just switching over now. As a matter of fact we are running the initial tests in what are our winter conditions, switching over to portable greenhouses for our winter set-up. Vegetation grown at 75 degrees





can be damaged four times more than when grown at 55 degrees. There is a temperature factor there.

Did you get a copy of Middleton's report, "Response of Plants to Air Pollution"? Air Pollution Control Association Studies, 7-9, May, 1956.

THE CHAIRMAN: Are you any relation to the Doctor out there in California? You know him?

DR. HITCHCOCK: Yes, he just resigned.

MR. BELYEA: He resigned from the Los Angeles position.

DR. ZIMMERMAN: A nervous breakdown. It would almost drive anybody crazy.

THE CHAIRMAN: He has gone to live about 100 miles north of Toronto. ....

MR. BELYEA: You actually fumigate the greenhouses with a known air pollutant of various strengths, I suppose?

DR. HITCHCOCK: You had better take him out and show him.

DR. ZIMMERMAN: We can continue our discussion at lunch. To understand the type of equipment and to explain what we are doing, we had better show you some of the portable green-



houses and the set-up for transporting air to the greenhouses that can be heated, given a certain temperature throughout the year.

THE CHAIRMAN: Is there anything more we can discuss in the office?

DR. ZIMMERMAN: Yes. Maybe another minute or two would help you to understand the type of things you can get here versus other places.

I think I will tell you in advance that fluorides can be controlled when used for fumigating plants, and we have it down to a very fine point whereby we can show one part per billion. We do not speak of these fluorides, as we do of  $\text{SO}_2$  where we speak of "parts per million,"; we have to speak of fluorides as "parts per billion;" so we can get one part of hydrofluoric gas in the air to a billion parts of air, and we can change that to ten. We used to go up to 1. parts per million, and that was found to be out of range, we could not injure anything with that.

But now it develops that you can damage the more sensitive plants, like gladioli, with one part per billion. You can mark the leaves. Another concentration will mark



chrysanthemums; they happen to be in the resistant class. Gladioli are one part per billion, and tomatoes are higher, and then citrus, and all along the way.

There is a publication we can give you on the comparative susceptibility of plants to hydrofluoric acid and fluorine in the air. We have instituted a publication which we call "Contributions", and in that all the various investigators publish the results of their experimental work, and in there eventually will go more of our work on air pollution.

We also publish data in other papers, such as the American Chemical Society and quite a number of other places.

DR. HITCHCOCK: To answer the question which was asked a little while ago, already we have several publications on the methods of equipment used, -already published- as to how we inject the gas, and what kind of gas, and how we measure it, and how we measure what the plant takes up, and so forth.

These methods of procedure are already published.

THE CHAIRMAN: Generally speaking,





Doctors, you are prepared to say quite definitely that all forms of pollutants affect vegetation of all forms at certain degrees?

DR. ZIMMERMAN: I would not say it just that way, because there are many controversial issues.

At Los Angeles there are those who complain that ozones damage plants, and those who claim they do not, and I see that Middleton says the pinto pear has been selected as a test plant for measuring the mechanism of damage and some of the effects of oxidized hydrocarbons on plant processes.

At one place he says that ozone plants vary in their susceptibility to reaction products from oxidization of hydrocarbons, and he thinks the ozone itself is not doing the work until it is reacted with hydrocarbons.

There is another group which is on the other side of the fence. So many of these things will have to be ironed out in time.

I could not answer the question the way you put it. It would infer that all these things which are emanations from industry would be toxic.



These hydrocarbons as such are not effective on plants in the amounts around industry, but ethylene is very effective.

So you have to pin ~~it~~ on given types of pollutants, and fluorides would definitely be one of them.  $\text{SO}^2$  would be another. The ordinary black smoke which you see, and which looks very bad, is mostly just carbon dioxide. It would not hurt plants to amount to anything, unless they got awfully dirty, and then it would be a nuisance; but as far as the plant is concerned it would not hurt it.

MR. MURDOCH: It is true, too, that some of these experiments take considerable time, and you really can not give out any finding until after a considerable time, so that you can check all angles.

DR. ZIMMERMAN: There is a time factor in every pollutant; a concentration time, and <sup>and a</sup> temperature, /combination for each one of these things. You cannot just say that hydrofluorine is toxic to plants; you must know the concentration, how long was it exposed, what was the temperature, and so on.

MR. BELYEA: Do you claim damage is





being done to plants and trees in and around New York City?

DR. ZIMMERMAN: Some years ago I helped to make a little survey around New York City. We found that most of the species have been eliminated, and they grow down there now the Tree of Heaven and Privet, and I can mention quite a number of others.

The same thing could have been said around Pittsburgh some years ago. Pittsburgh has cleared up its smoke terrifically, and the number of species has increased, though they may still be limited.

Here at this Institute we can show you symptoms which are frequently confused with air pollution. There are disease symptoms which when I am in the field, often confuse me. I do not know whether it is disease or whether it is a chemical effect. You have to isolate the mechanisms and prove it is a disease by isolating, and definitely identifying the type of disease. I just could not answer your question specifically. I understand that people often want you to say "yes" or "no." But you cannot truthfully say "yes" or "no."



MR. BELYEA: I was told in St. Louis that the orchid growers moved out forty miles, 20 or 30 years ago. They could not grow orchids.

DR. ZIMMERMAN: I was there when they were moving, and they had a definite  $\text{SO}_2$  problem. That is what they said. It could have been a dozen other things, because it was a city emanation. But the holly plants frequently dropped all their leaves in 72 hours, and they showed symptoms of  $\text{SO}_2$ .

The orchids were definitely out of kilter, and they attributed it to  $\text{SO}_2$ . We know now that  $\text{SO}_2$  does not injure orchids quite like that.

There is still another problem there.

MR. BELYEA: They grow orchids in New York City?

DR. ZIMMERMAN: At times, yes.

At times they show this peculiar petal damage. If you go out along Long Island there are a good many orchid growers there, and they have a shrivelling up around the edge of the petals, making the flower look a little old, not beautiful. So there is an orchid problem from New York City to San Francisco and down to



Los Angeles.

They never have all their orchids killed, but it is definitely a problem. Last year the orchid growers called from San Francisco and said they would like to give money to help solve their problem. Well, we cannot solve the problem and we could not take their money to do it.

THE CHAIRMAN: Why can you not solve their problem?

DR. ZIMMERMAN: It takes too many lifetimes, and we have only one apiece. That will be a problem for many years to come. It is apparently something that is operating at very low concentrations, and it is liberated by city activities, not just one industry. You could go out around some aluminum industries and grow good orchids, and you go around another industry and it liberates other hydrocarbons ---

DR. HITCHCOCK: Chicago area, for example.

DR. ZIMMERMAN: West of Chicago, about 20 miles. One grower sends us material to show us how badly off he is; but we cannot do anything for him. We cannot eliminate Chicago.





THE CHAIRMAN: All he can do is move?

DR. ZIMMERMAN: Oh yes. But if he goes to San Francisco they have it there. Of course he might go out in the desert.

MR. BELYEA: Are there any plants more sensitive than some of these orchids?

DR. ZIMMERMAN: This man Davidson says, one part to - how many million?

DR. HITCHCOCK: About 10 minus 11.

DR. ZIMMERMAN: And we do not know for sure it is correct. It may be contaminated with ethylene.

MR. BELYEA: In Honolulu are they not having trouble in growing orchids?

DR. ZIMMERMAN: I do not know, I have not followed that.

DR. EVIS (Secretary): It would be general.

DR. ZIMMERMAN: This would be the calceola and not the symbidium variety. I think they are going to grow them and throw away the old glamorous calceola, because the symbidium can tolerate anything they have in New York City. So it varies with the species.

Instead of doing away with Chicago



we can throw away this over-sensitive species of orchid.

MR. MURDOCH: So they may assume, in the area of plant life, that fruits and vegetables are suffering from pollution from an industrial plant, when it may be a bacteria which is a new type of disease which has blown in from some other part of the country?

DR. ZIMMERMAN: Yes. I am not sure that that is not so. It could be.

MR. MURDOCH: In Essex County, corn, or something, was attacked. Whatever attacked it came from 60 miles over the Lake from Ohio. It is something they have had for many years.

DR. ZIMMERMAN: That is a disease?

MR. MURDOCH: Yes. However, we do not want to get confused on that. I am a little apprehensive about what we release, regarding the effects of bacteria on plant life, because some farmers jump to conclusions very quickly; they do not wait to hear an explanation of what else may be the cause, and so forth, and I would not want to raise any hysteria.

DR. ZIMMERMAN: You have said that well, and it is right to the point. A farmer





out in Winetche, Washington, did something in the management of his <sup>peach</sup>/orchard which involved ripening rapidly on one side and not the other, and there was a crack down the centre of the peach, and about 75% of them actually cracked in the barrel. He said, "I borrowed money from the bank to grow this crop, and I have to pay them back", so what he did was to look around immediately for somebody to sue.

He started suing people for spraying 2.4.D on the wheat fields on a plateau, and then his lawyers arrived at the conclusion that it was not 2.4D, and it was worse this summer than it was last summer, and now they are looking for another prey.

MR. MURDOCH: We have an experimental farm in my County in the Dominion of Canada, with several scientist specialists. I am well acquainted with the farmers, and a lot of the old farmers say, "Until we had all these doctors around here, we did not have all these diseases". They thought they brought the diseases along with them. That is the thinking.

THE CHAIRMAN: They think it is the doctors' halitosis, or something.



DR. ZIMMERMAN: One farmer said, "You are putting fluorine in my leaves; you do not care how much it takes to damage them. I do not want that fluorine there; it is poison, and I want it taken out". He knows fluorine is poisonous, but he did not realize that it is natural for the plants to take up fluorine. That is an Act of God. But if industry puts out one speck they have to pay.

MR. ELLIOTT: I notice that you are growing trees extensively in the Harlem area, and actually they are growing on the sidewalk, where they can get very little moisture. What you are doing in this respect is very interesting, and I think we could learn something to take back home.

We have cities and towns where it would look awfully nice to have a little green foliage around, and probably we could learn something through the trees you are planting, as to how you have developed them to the stage they have reached in and around the New York area.

DR. ZIMMERMAN: Trees are growing very much better now than when I came to the Institute in 1927.



MR. ELLIOTT: What sort of trees are they, in the first place?

DR. ZIMMERMAN: I am not paying much attention to the cities right now. What they had was the Ginko, and then they have that Tree of Heaven, and Privet; those are about the only ones that ever grow for a long time.

Now they are spreading out again. I think they are taking anything they can get hold of, and the trees are growing.

MR. ELLIOTT: Would that be because the air is any cleaner?

DR. ZIMMERMAN: Yes, I think so.

They went so far as to plant limes which nobody recommended. Down in Arkansas, persimmons are very resistant to any kind of pollution they can put out.

---At this point, a short recess was had to permit the Committee to tour the grounds.

---Upon resuming.

DR. ZIMMERMAN: You can see how





difficult some of these things are. It took us a long time to get that equipment down to a fine point.

Fluorine analysis is one of the most difficult. It took us a couple of years to devise the equipment and get it down to a point where we could depend on a given concentration, and then, after we had the plants fumigated, how to get the effect on the plants by the determination of the amount of fluorine in the leaves.

It is not an easy problem, but it has been ironed out to the point where I think we have the best analytical equipment and satisfactory fumigation equipment.

What the industries liberate is still another problem, and I can see that you want to know about all the industries and what can be learned about control. You want to learn about aluminum, the phosphate industry at Toronto, and so forth. By knowing all you can about one, it will help you size up the others.

I can see as a legislative committee, you are trying to find out, "Where are we headed for in Canada, and can we stop this before it reaches the Los Angeles phase, or can we do



something to help industry?" Too many people, I think, feel that rich industries have no right to exist. Actually without these industries our Country would practically stop. So our attitude has been, "how can we help the industries to live with the people around them.?"

Most of the time these industries want to do what they have to do. Another assumption, which I have found incorrect, around some of these places is that "They are just trying to run us out". But I have not found that to be the real attitude of the people who run industry. They want to know what they have to do. If they have to get down to ten parts per billion of fluorine in the atmosphere, they can do it. It is going to be awfully hard to get below 1 of fluorine.

Most of the crops can grow normally under these conditions. It happens that in the corn the leaves collect the majority of it, and the seeds have practically no fluorine at all.

At the time the corn is harvested you can take the kernels used for feed and there is practically no fluorine in the corn, whereas the leaves have 100 parts per million.





DR. HITCHCOCK: Some of you asked about tomatoes. In general that applies to all plants, whether it is a commercial crop or not.

Fluorine is mostly in the leaves, less in the stems, except with that plant about which we spoke, the glypbar, Southern Rhodesia, 6,000 parts of fluorine per million).

In corn, for example, the leaves may contain all the known sorts of fluorine. They might contain more than is good for cattle, if you just took the leaves, but if you took the whole plant and ground it up for ensilage it would be away down, even though the leaves may have an amount which they say the cattle should not eat. By which I mean, 50 parts in a million or more.

But if you take the whole plant and grind it up, you will find that, instead of it being up around 50, it may be in the neighbourhood of 10 to 15, or less--that is, for the whole sample.

In any operation which is emitting a substantial amount of fluorine, the hazard is, first of all, we will say, to cattle about which you have to think. It is true that, as a grower of gladiolus like myself, knows, a little tip on



the leaves reduces their selling value, and it requires labour to clip off those tips of leaves when they sell their flowers.

Fortunately the flowers are more resistant than the leaves.

THE CHAIRMAN: Dr. Zimmerman, in Ontario we have certain industries which are exempted under the present Provincial Law, insofar as air pollution and smoke are concerned.

Nobody seems to know why. They were exempted years ago. They include cement plants, the brick manufacturing outfits, and certain metal processing industries. So one of the things I think probably this Committee will recommend to the Legislature is the removal of all exemptions so that all industry and manufacturing comes under the law, so when a municipality passes its own local smoke-pollution ordinance there will be no exemptions.

I am asking you to comment on that in line with what you said about cooperating with industry and helping industry, rather than disturbing and harrassing industry.

DR. ZIMMERMAN: My inference was that we have an unfortunate attitude. I have looked



in on a number of lawsuits, and juries here are very apt to take the attitude, "This is a rich industry; give it to them." That is a very bad attitude. Possibly they do not mean it, but, for some reason or other, there has been built up in this Country among too many people an anti-industry attitude.

THE CHAIRMAN: It is the same way at home.

DR. ZIMMERMAN: And I say that is unfortunate. They do not stop to realize how badly off we would be without the industries which we have.

Now, unfortunately, some industries have not been advised sufficiently, or controlled sufficiently. For example, if taking out one oil well at Los Angeles would solve that problem, they should take out one oil well; if taking out one section of big industry would solve the air pollution problem out there, they ought to take it out.

That means a cooperative attitude between people and scientists and industry, and that is the attitude we are trying to assume here now, and to give them as much information as they need to help them cut down their pollutions, but not





to zero point, because that cannot be done.

We are having a growing problem in air pollution to cut it down so that they can get along with their neighbours. They will have to do away with this attitude some scientists have, that if a bit of something gets onto a leaf which does not belong there, it is an injury; and that is a growing assumption now.

We are going to take this attitude when we can demonstrate an inhibition. There must be some inhibition and reduction of crop. Until you can demonstrate that, then we think the plants can tolerate what they are getting out of the air and out of the soil.

If you look at the thing in one relation, it ends in the soil. There is some drop-out, as with this so-called hydrogen bomb you hear so much about, and the further you go from the industry the less there is. But you take a thousand pounds, and there will be a sizeable build-up. If that drop-out happens to be a material which is not very important we can forget about it, but if it has a build-up in the soil which carries toxic material, you have to stop and figure how long it will be at this rate until



there is too much in the soil.

So we are trying to equip our sponsors with the information, how much can they put in the air before they injure the plant. How long can a plant tolerate it. And how long can they get on with their neighbours and still do what they are doing.

---The following proceedings were had at a luncheon tendered to the Committee by the Boyce Thompson Institute.

- - - -

DR. McMEW: The Alcoa people said:

"We do not doubt that fluorides are doing a good deal of damage, but we do not think they are doing nearly as much damage as people think they are. The difficulty is that when we go to a court of law to defend ourselves, neither the people who defend us, nor those who attack us, nor the judge, know the facts. We would like you to get the facts, and particularly in the area as they affect the plants."

DR. ZIMMERMAN: There was one litigant in a case against Alcoa who secured a verdict in his





favour much less than he wanted, but he did actually get a verdict, and the company decided to "go along" and pay it. But instead of paying just him, they gave what they considered a sufficient amount to the committee to divide among the people around him, between him and the industry, on the assumption that if he had a right to be paid, the rest of them also had.

It happened that the lawyers on the committee got into an awful fight, and some of them will not speak to each other.

There is now a demand for sulphur, and there will be a demand for many years to come, against a few years ago when there was a surplus production. Some of our study was built on money from the Texas Gulf Sulphur. ...

DR. EVIS (Secretary): Would you care to say thing about Strontium 90 getting on vegetation?

DR. McMEW: A Committee of the National Research Council on "Hazards of Radiation" has a sub-committee on genetics which has just turned in a report published by the National Research Council, - two big documents. They point out the interesting thing that there is ten times as much hazard from x-ray exposure in medical diagnoses



as there is from fall-out.

The New York Times, I think, put this thing in the right perspective where it said:

"There is a hazard; we try to get away from it; we cannot convince other people, so we have to put up with a certain hazard."

What I think Mr. Stevenson and Mr. Kefauver are doing is playing upon the natural fear of the unknown that every human being feels. I cannot help but feel that they have stooped pretty low to try to win. The issues they set up at the beginning did not click with the American people, so they are trying to manufacture something to scare people.

I do not think that if they were in power they would stop the testing. They said they would stop if Russia quit. Russia has not quit. That kind of thing releases them from it.

The fact is, that in this Country, in spite of all the furore, we have introduced 25 new chemicals, some of which are being used at the rate of one hundred million pounds per year, and the bald fact is that there is not an authentic case of a person being killed by the use of these things on crops. I was fearful for



two or three years, that the hysteria would be so great that there would be no more research.

The food industry in this Country was insisting that these chemicals had to be kept away from all food products. The answer is that if Gerber's Baby Food happened to kill one baby they would be done, businesswise.

The lines were drawn between those, like the American chemical industries, which has a stake in progress, and the people who had an old-line product and did not want to have their existing structure disturbed. They had some interesting fights, and finally came up with a sensible plan, and everybody seems to agree with it, including our Food and Drugs Administration.

---Whereupon the further proceedings of this Committee adjourned to reconvene in the city of Ottawa, Thursday, November 8th, 1956, at 10:00 o'clock a.m.

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ONTARIO

P R O C E E D I N G S

of the

SELECT COMMITTEE APPOINTED BY THE ONTARIO LEGISLATURE  
TO ENQUIRE INTO CERTAIN MATTERS AND LEGISLATION  
REGARDING SMOKE CONTROL AND AIR POLLUTION IN ONTARIO.

Mr. A. H. Cowling, Chairman,  
Dr. F. A. Evis, Secretary.

- - - -

VOLUME XXXVII

Thursday, November 8th, 1956,

OTTAWA, Ontario.

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R. C. Sturgeon,  
Official Reporter,  
Parliament Buildings,  
Toronto, Ontario.



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## T H I R T Y - S E V E N T H     D A Y

Ottawa, Ontario,  
Thursday, November 8th, 1956,  
10:30 o'clock, a.m.

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- The further proceedings of this Committee reconvened pursuant to adjournment.

Mr. A. H. Cowling, Chairman,  
Presiding.

PRESENT:

Messrs. Murdoch,  
Elliott,  
Morningstar,  
Gordon,  
Thomas (Oshawa),  
Dr. F. A. Evis, Secretary.

APPEARANCES:

Hon. Paul Martin,	Minister of National Health and Welfare,
Mr. George Carty,	Executive Assistant, to the Minister of National Health and Welfare.
Dr. Kingsley Kay,	Chief, Laboratory Services, Occupational Health Division.
Mr. H. Belyea,	Air Pollution Control Officer, Metropolitan Toronto.



THE CHAIRMAN: Gentlemen, let us come to order. I think you probably have some questions you would like to ask of Doctor Kay.

D R. K I N G S L E Y K A Y,

Chief, Laboratory Services, Occupational Health Division, Department of National Health and Welfare, appearing before the Committee, but not being sworn, deposes and says:

BY THE CHAIRMAN:

Q. What is your association with the Department, Doctor Kay?

A. I am Chief of the Laboratory Services, Occupational Health Division, Department of National Health and Welfare.

Q. Has the Department been studying pollutants for some time?

A. Yes, for many, many years, the problem of silica dust in mining, and so forth have been under investigation.

As another example, we have been studying the organic solvents used in paint manufacturing. More recently we have been carrying out research on urban air pollutants.



Q. Could you briefly give us the difference between your Department and the provincial department?

A. We operate in a form of co-operation with the provincial health departments, specifically your own Industrial Hygiene Division. In this sense, we undertake to give certain special services of a nature which perhaps your province, or any other province, may not find it economically profitable to carry on. An example of that is the analyses of certain types of dust. To do that, requires highly elaborate equipment, which you will see when we go over to the laboratory.

It has never been felt that any of the provinces -- and I believe it is still the case in Ontario -- found it economically sound for them to make the capital expenditures, which are very sizeable, to get the type of equipment required for special dust analyses.

Q. Do you work with Doctor Katz?

A. Oh, yes, we work together on these problems.

We operate this equipment in Ottawa. It analyzes the dust for a great many provinces, including





your own.

Apart from that, a number of the provinces in Canada have not developed environmental services, and in those instances, we go in, in a consultant capacity either to assist them in planning this service, and get them going, which we are able to do by the way of health grants, or, in many cases, we carry out a service for them, if they are not ready to "get going" on their own.

We also carry out certain research studies which provincial governments may recommend as a problem in the course of the administration of their Public Health Act, or their Factory Act.

We carry out these research projects often at their request, because they have not set themselves up to do just that. Perhaps it is in that area that we get more demands from the province than any other, right at the moment.

Q. Do you feel that anything that has to do with air pollution and smoke control -- and I mean "anything" -- should be under a health department, and no other department?

A. That is not a problem which has ever concerned me. I never have had to face up to that.



There are many types of technical organizations which can handle air-pollution problems. For instance, a mining department, which had an engineering section, would be perfectly capable of handling the simple questions of installations or collecting systems for effluents, but we do not expect the engineering section of a mining department to make evaluations of the effect of air pollution on health.

Some health departments have engineering sections which are also quite capable of dealing with the specifications for installing control equipment. Health aspects of air pollution would logically fall within the terms of reference of Health Departments.

Q. In the field of air pollution and smoke control, do you think that health is the No. 1 question to be taken care of?

A. Yes. Certainly that item is of the greatest interest at the moment.

Q. That is, health as compared to physical damage?

A. At the moment, health, as compared to physical damage, appears to be of interest to more people.

BY DOCTOR EVIS (Secretary):

Q. In 1955, I saw a copy of your article in



the "Heating and Plumbing Engineer", and you say:

"It is almost certain that air pollution is one of the main causes responsible for the climbing incidence of lung cancer."

We would appreciate a positive statement to that effect.

BY THE CHAIRMAN:

Q. You are not a medical doctor?

A. No, I am a scientist.

BY DOCTOR EVIS (Secretary):

Q. That was the means of bringing the attention of the Legislative Assemblies to this problem?

A. I think that statement was made at the time when the work of Stock in England had just been reported, and since that time, there is a good deal more evidence in that direction.

At the same time, there has been some complexity introduced in view of the more elaborate cigarette research, and while it has given us additional information, it has not necessarily made the problem any more simple to point up.

But just looking at the field of air pollution itself, there are a number of recent studies since the time of my article, which have identified many, many new carcinogenic substances in urban areas, notably





in Los Angeles.

There are evidences of potential carcinogenic substances, such as will produce skin cancers in mice in laboratories, and many of them are the natural product of the combustion of fuel, gasoline, diesel oil and so forth, and more recently the gas fuels in California.

Apart from that, the workers in California<sup>1</sup> have shown in the past several months that there are carcinogenic substances of an entirely new type. The carcinogenic substances about which I spoke in that article, and which have been generally accepted, are the so-called polyaromatic hydrocarbons, and workers have~~ve~~ shown there are carcinogenic substances of the aliphatic class.

Q. Could you give us an example of that phrase you used? I am afraid some of us are not quite able to follow you.

A. Benzpyrene is a polyaromatic hydrocarbon associated with the combustion products of coal, for instance.

Q. Oil refineries, too?

A. To some extent, although that is not so well



established.

Q. What was the other word you used?

A. Diepoxides.

Q. Do they come from smoke?

A. It has been shown that diepoxides, a rather complicated chemical, also are formed from combustion of fuel.

Q. Can you say there are new developments which might contribute to lung cancer?

A. Yes, there are additional chemicals being identified all the time.

---Whereupon the deposition of Doctor Kay was interrupted to permit the Committee to interview Hon. Paul Martin, Minister of National Health and Welfare, (see page 2813) at the conclusion of which Doctor Kay resumed his deposition as follows:

---The following proceedings were held in the laboratory under the direction of Doctor Kay.

DOCTOR KAY: We have one problem we are studying in Ottawa. We have two sampling stations which we started on the 1st of July. We really started those to help Doctor Lossing, who will tell you this afternoon about the study he is conducting of people in the Home for the Aged. We are



studying the level of pollutants in Ottawa, which I think will be valuable, because we never had it before.

His studies have stopped for the winter, but he will carry them on next summer; in the meantime, we have kept on with the environmental record ourselves.

That problem touches the biological side, and not really from the side of our laboratory group.

The other problem is the study of the nature of the particulate matter in air. To date, there has been only the most limited study done on the nature of particles in the air.

There has been a great deal of the collection of gases in the air, but very little is known as to the constituents of particles. This project has not arisen because of any particular problem in Canada. That is, it has not arisen out of any one problem. It is something you might designate as being along the more fundamental lines.

In reference to the studies we have done on the effect of pollution on animals, we came to the conclusion that ultimately we would have to know more about what was in the particles in the atmosphere, if





we were going to set up, in any sound way, artificial atmospheres, which we might want to do.

Our animal work will start with gases, and we will have to introduce some particulate matter which will be like what you find in the atmosphere, and so we decided we had better start with particulate studies which, as far as we knew, were not being carried on in a detailed way in any other centres.

As you may have found out from your travels in the United States, we found the larger proportion of the research in the United States has to do with Los Angeles, but that is not particularly typical of the situation in the eastern centres.

So we got into this problem, and the first thing we tackled, because of the type of equipment we happened to have, was the question of the air crystallites, such as calcium sulphate, in the particulate matter. These are to be differentiated from things like carbons, which are amorphous. We happened to have equipment which could very readily identify these crystals, and we have identified quite a large number.

One of the interesting things which is not explained as yet, is that we have a tremendous amount of calcium carbonate in the air all over the world.



It is in the country as well as in the cities, and we have had samples from Europe, and have had samples taken at the North Pole, and everywhere there is calcite, and we found, even in the cities, a large amount of calcium sulphate, and, of course, according to our present thinking, it is found in the city atmosphere because of its reaction with sulphuric acid, and also its reaction with sulphur dioxide, through a more complicated mechanism.

This is an example of one type of material in reaction with urban gases.

Other people have found in the particulate matter a number of elements, for instance, in connection with paint, lead, zinc, and things of that kind. At the moment, we are going on with this work, and we hope to find out whether these other elements in particulate matter are sulphates or nitrates, or exactly what form they are in, what degree of toxicity these particles possess.

(page 2806 follows)



For instance, let us consider beryllium: The toxicity of beryllium varies with its chemical combination.

Therefore, we feel it will be profitable to find out the exact form of elements which are present in the particulate matter, because it will assist in establishing some idea of whether there might be in the particulate matter some unusual toxic salt.

We are interested in the soluble crystallites in the particulate matter, because they have more opportunity of creating damage in the lungs.

Our approach to this environmental study as to exactly what is in the particles in the atmosphere has been that we have always had in our minds a question as to what may have health significance, from the information we may discover.

BY MR. MURDOCH:

Q. Did you do any sampling in Trail, British Columbia?





A. We have had no connection with the Trail problem as yet. Our work has been more along the line of fundamental work, but we do have another problem which is not in this laboratory at all, but which we look after, and that is a study of arsenic contamination at Yellowknife, in the Northwest Territory. That is the only really well-confirmed case of the health effects of pollution in Canada. It is not pollution of an urban type; it is a specialized type of pollution coming from a particular operation, the smelting of ore.

At Yellowknife, they have an area heavily contaminated with arsenic from two stacks. We had well-confirmed cases of illness among the population, and amongst animals, and there was reported the death of one child from drinking snow water.

BY THE CHAIRMAN:

Q. It can go as far as death?

A. Yes.

BY MR. MURDOCH:

Q. And how far it can go, with the new manufacturing processes, of which we know nothing today --



A. There was nothing deliberate about it.

The two gold mines started up in the same way, the Giant Yellowknife, and the Smelters Consolidated.

There were no people there. It was an unpopulated area, but when the mines started operating, and it became a populous area, by the time the operation was well advanced, they had around 3,000 people there.

By that time, the original plan, which seemed safe enough, of simply venting that arsenic into the atmosphere, was no longer a good plan, because of the large number of people living there.

We went there six years ago as consultants, because that is looked after by the Department of Northern Affairs, and we were called in.

The mines had put in collection systems, but we are still following the course of this arsenic which had been laid down for some two or three years previously.

It is present in the water and on the vegetation, and there is still some in the air from the two stacks, because the collection systems are not yet 100 percent. perfect. We will follow the case until the level of the arsenic is reduced sufficiently.

Q. Could that come from the gold mines in



northern Ontario?

A. I think they have had this same problem in the northern area. You had this problem much earlier than we had it; in fact, I do not know just in what year the problem arose.

Q. Did they do something about it?

A. Yes, they put in collection systems.

BY MR. ELLIOTT:

Q. In the gold-mining areas?

A. I do not think it would be fair to say that arsenic is associated with all the gold areas.

BY MR. MORNINGSTAR:

Q. And silver, too?

A. Yes. It is present in concentration throughout the whole Cambrian Shield.

BY MR. ELLIOTT:

Q. Do they have it in any gravel or sand pits?

A. I never heard of it. It might occur occasionally.

Q. You have no proof of it so far?

A. I have never heard of it. It is certainly very widespread in the north.

The gold ore is associated with arsenic, and has to be separated from the arsenic, to have it refined.





The standard procedure has been to heat it and draw off the arsenic with heat.

Q. From the ore?

A. In some places they have tried that. In some places, they are collecting it, but unfortunately it has no value.

BY MR. MORNINGSTAR:

Q. You mean these collectors, or what is collected?

A. They collect gold in the collectors. There is always some gold escapes. In fact, in my opinion, there is no reason why a gold mine should not collect all this arsenic, because in doing that, they must collect gold, and it generally pays for itself.

BY MR. ELLIOTT:

Q. What do they do with the arsenic?

A. That is a problem. It has no value.

Q. It goes back to the rivers and streams?

A. That is a problem. In Yellowknife, we started with two systems of storing arsenic. One company put up the proposition that they would go into the area with what they call the pillar lava, and form a basin there and pile it up at that point. We did not like that idea at all. We made them go to quite a good deal of trouble to determine whether



there were any faults in the rock through which the arsenic could seep back in to the mine. They produced evidence, and we accepted it, that the rock was solid.

BY MR. THOMAS (Oshawa):

Q. Is it a liquid?

A. Yes. It will eventually dry solid.

Their proposition was to cover it over with soil and mark it, and that would be that.

We do not like this very much, but we accepted it as about the best we could get.

BY MR. MURDOCH:

Q. It is difficult to dissipate the arsenic?

A. Very difficult.

At the other mine, they collect the arsenic dry, because they propose to use the old workings of their mine, and they would blow it down there.

We had some objection to that, because of the connection between the workings, and we were not satisfied it would not seep from one to the other. This was deep in the mine.

They agreed to dig out the



storage caverns in the upper level, where it is permanently frozen down as much as 100 feet, and where we know it would never seep out.

It is really a big problem, because they collect about twelve tons of arsenic a day in these two mines.

BY MR. ELLIOTT:

Q. Does it kill bird life?

A. Oh yes. In the winter, when they had no collection system. It gathers on the snow all winter long, and when the break-up comes, it all goes out in the water, and the level of arsenic in the water rises very rapidly.

Q. Does it float?

A. No, it dissolves.

BY MR. MURDOCH:

Q. There is no radiation effect from arsenic?

A. No. I would suggest, if it meets your wishes, that we go around now and see some of the workings in the laboratory.

THE CHAIRMAN: That will be fine.

---The witness retired.

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HONOURABLE PAUL MARTIN,

Minister of National Health and Welfare, appearing before the Committee, but not being sworn, deposes and says:

BY THE CHAIRMAN:

Q. Mr. Minister, we appreciate you allowing us to take up your time today. We know how very busy you must be.

A. We are all busy.

Q. The Committee felt it would like to be able to record a short interview with you in connection with these air pollution studies. We know of your interest in them.

A. Yes. You know the study we had in Windsor, of course?

Q. Yes, we do.

A. The study which arose out of that arrangement, really began with a complaint which had been made to me personally by the Governor of Michigan. He said that Ontario was not enforcing its laws.

I looked into it, and I mentioned the matter to hon. Mr. Frost, who was, and is, very interested in this question of air pollution.

As a result, we arranged with Governor Williams to come and speak to the International Joint Commission.



They were having a meeting in Ottawa. He came and made representations to them at that time.

The result was that the International Joint Commission set the thing in motion, and as a result we were able to arrange for a two-way conference, the United States Public Health Service participating, and they carried on a study which lasted for about two years.

We did not select Windsor because it was the dirtiest spot in Canada, but because it was the largest area on the border where a study like that could be profitably undertaken.

My advisors told me that from the point of view of health, very significant matters must be attached to air pollution, perhaps more even than water pollution.

If smoke is thought to be a factor -- and I am not saying it is -- in lung cancer, there are good scientific reasons for wanting to carefully examine the implications which arose out of air pollution, "smog", and so on and so on.

Of course, what frightens one right away is the tremendous cost which will flow from all these things. In the matter of water pollution of the Great Lakes down in our area, the cost to the municipalities,



to the provincial government, and ultimately I suppose to the Federal government, will run into something like \$40 million. That is a great deal of money.

I think that industry has a big responsibility in this. They should not go scot-free. I do not think the municipalities, nor the province, nor even ourselves -- if we ever get into it -- should be entirely free.

BY MR. MURDOCH:

Q. We were wondering if the report of the International Joint Commission which is to be made, will be finalized before we present our report to the Legislature, which probably will be in February or March of next year. They made a report, and we wondered if it would be finalized by that time.

A. Whether it is finalized or not, I do not know how that helps the problem. You mean their recommendations?

Q. Yes; it does give us some aspects on the effect on health.

A. I think that part of it will be finished, but I also think they propose to go further than that.

BY THE CHAIRMAN:

Q. As you know, Mr. Minister, this Committee is





an all-Party Committee.

A. I know. It is not political; it is too important for that.

Q. I wonder, speaking of money -- and that seems to be one of the things with which you deal -- in this matter of air pollution and smoke control, do you feel that the Federal government might be prepared to assist in a financial way, insofar as scientific and technical information is concerned?

A. Oh, as far as the health aspects are concerned, absolutely. We are doing that now.

BY DOCTOR EVIS (Secretary):

Q. We have had two applications from provincial universities who wished to do research in regard to air pollution.

There was one gentleman, Doctor Cullumbine, who came from England, and has had considerable experience there.

A. Any research problem of that kind would be given very sympathetic consideration by us.

Q. Would it be clarified under the existing regulations?

A. If it is a health study. We have to make sure of that. We cannot use monies available under the National Health programme unless it is for health.



It could not be a mixture of health and something else, but if it is substantially for health, yes.

The monies which were provided by the Federal government for this study of air pollution came out of this department -- came out of the National Health programme. It was to provide funds for study.

So the answer to your question is definitely in the affirmative, if it is a health project.

THE CHAIRMAN: We consider health as No.1, and physical damage as No. 2.

THE WITNESS: Yes. I do not know whether the provincial law is strong enough --

BY THE CHAIRMAN:

Q. It is not.

A. I thought perhaps it was strong enough, but it was difficult to enforce it. If it is not strong enough, it should be made strong enough.

Q. We feel there are some weaknesses in the law, which can be adjusted.

A. Yes. Consider, for instance, in Windsor, the big plants there, Ford and Chrysler. They are powerful companies, but they should not be allowed to contribute to this pollution.

That does not apply only to Windsor; it is



elsewhere. In Michigan, I think they have done a great deal.

Q. In Detroit, they have done a big job.

A. The city of Detroit enforces it. In the big cities, the problem is greater. It naturally would be. But I think the answer is because of the fact that it is not enforced as much as it might be.

I was discussing that with Premier Frost last Friday, and he said, casually, "I think the law is all right, but there is weakness in enforcement". I would not be holding him down to that; it was just a casual observation he made.

BY THE CHAIRMAN:

Q. There are certain exemptions under the present law?

A. Yes, I know.

Q. The Committee thinks they should not be there.

A. I am sure it is a very useful study in which you are engaged.

BY DOCTOR EVIS (Secretary):

Q. One of our particular problems I will bring up quickly, because I know your time is limited.

One thing is dealing with the railways from a provincial angle. The Committee last July





suggested a revision to General Order No. 18, which was passed in November, 1908, and under which the Board of Transport Commissioners administers the railway problem in Ontario.

Doctor Katz has seen these suggestions and has approved them wholeheartedly with one slight exception, that is the one dealing with diesels. He thought that was slightly premature.

But so far as the coal-burning locomotives are concerned, he thinks it is excellent. Perhaps you have not seen it?

A. Yes, I have.

Q. I thought we might leave it with you and when you return, you could have it on file.

A. No, I have it already.

I am trying to think of another problem presented by the hon. member for Brant, Doctor Charlton, in the House of Commons --

MR. CARTY: He suggested some device being put on automobiles, trucks and buses.

THE WITNESS: Yes. He raised a very interesting problem. He pointed out the pollution which came from the exhaust pipes of the cars, and the fumes, and so on, were some of the most serious things.



I did my best to point out we had no authority to stop that kind of thing, but when you give that kind of an answer, you open yourself to the retort that you are not interested.

I wanted to explain that because I think it is important to understand our respective constitutional responsibilities. Even if we wanted to do something, there is no sense in saying we could, when we cannot. We cannot pass legislation to stop automobiles, as you all know. But we found out afterwards we had done some research here on the device he was talking about.

MR. CARTY: I believe we found there was no such device that would really do the job.

THE WITNESS: But we had done some research work. He had said that in the United States, they had created a device, and we had tested it here, and found out it was wrong.

BY DOCTOR EVIS (Secretary):

Q. In Pennsylvania, when they prepared a report, they said that when the device became available, it will be made compulsory.

THE CHAIRMAN: Gentlemen, have we asked all the important questions of the hon. Minister?

DOCTOR EVIS (Secretary): I think so. The



big difficulty is to see that basic air-pollution research is applicable to health.

MR. BELYEA: I would like a break-down on that one by Doctor Fisher. When he does research, the two could be combined.

THE CHAIRMAN: I think the hon. Minister was very fair when he said if it has to do with health, he would be interested, and would be interested in a financial way.

DOCTOR EVIS (Secretary): I have not spoken to Gordon Brown for quite a while, but I think our public allotment for research is up to the top level.

MR. CARTY: There is only so much in the pot.

THE CHAIRMAN: Mr. Minister, I think we have pretty well covered the ground with you. There is just a question of whether the Department would consider any monies earmarked specifically for air pollution and smoke control.

THE WITNESS: No, that is not the way it operates. We have so much money available in the national air pollution problem for research, but we do not earmark it for anything.

We receive these projects from the provinces, or from the universities, medical centres, and so on,





and they are referred to a committee, a group of medical scientists, and the Committee of the National Research Council makes recommendations to me, and invariably, because of the technical character, I follow their judgment.

We always get more applications than we could possibly meet, and they have to decide on the merits and the priorities of these various applications.

But I am sure there would be no want of funds from our angle if the project involved health in this field.

THE CHAIRMAN: Well, if there is nothing else, we thank you very much indeed, Mr. Minister, for giving us some of your busy time.

THE WITNESS: It was a pleasure, I assure you.

---The witness retired.

---Whereupon, after inspecting the laboratory at 200 Kent Street, Ottawa, the further proceedings of this Committee adjourned until this afternoon at three of the clock.

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A F T E R N O O N   S E S S I O N

Ottawa, Ontario,  
Thursday, November 8th, 1956,  
3:00 o'clock p.m.

- - - -

The further proceedings of this Committee  
reconvened pursuant to adjournment.

Mr. A. H. Cowling, Chairman,  
Presiding.

PRESENT:

Messrs. Morningstar,  
Murdoch,  
Thomas (Oshawa),  
Gordon,  
Elliott,  
Dr. F. A. Evis, Secretary.

APPEARANCES:

Dr. Kingsley Kay,	Chief, Laboratory Services, Occupational Health Division.
Dr. Morris Katz,	Consultant, Atmospheric Pollution Services.
Mr. H. A. Belyea,	Air Pollution Control Officer, Metropolitan Toronto.
Dr. E. H. Lossing,	Chief, Epidemiology Division.



---The proceedings of this meeting were held in  
Suite No. 144, Chateau Laurier, Ottawa, Ontario.

- - - -

THE CHAIRMAN: Gentlemen, we will open the  
meeting, and formally thank the Doctors for coming  
here.

DOCTOR KATZ: You are right on time.

D R. M O R R I S K A T Z,

Consultant, Atmospheric Pollution Services, Occupational  
Health Division, Department of National Health and  
Welfare, appearing before the Committee, but not  
being sworn, deposes and says:

BY THE CHAIRMAN:

Q. We thought we would like to talk over some  
of the problems with you, and if we could get some  
advice from you at the Federal level, it would be  
appreciated.

I remember our chats in Buffalo, and now we  
are home, it is a little easier to talk.

We met with your hon. Minister this morning  
for a little while, and we were very favourably  
impressed with his attitude toward the problem of  
air pollution. He seems to know the subject very well,





and we were particularly impressed with his attitude toward some financial assistance to the provinces, and we would like to take advantage of it.

Maybe you would like to take over from there.

A. All right, thank you, Mr. Chairman.

While I think air pollution has its national aspects, it does create a problem. It has local aspects, and also international aspects, and we hope that the international aspects will not arise too frequently.

As I look on this problem from a national standpoint, it seems to me that this work your Select Committee is doing is absolutely unique. This is the first time there has been any committee interested in the problem, and I feel with the increasing development of this country, the expansion of population and the growth of industry, and so on, the time is really ripe for a good look at the problems we have already, their backgrounds, and what action you will probably take in the matter.

Now, in Canada, there is a great diversity of problems, although we have nothing as spectacular, nor anything which has been "ballyhooed" to the same degree as the Los Angeles situation. Still we have a number of potentially very serious problems.



First of all, let us consider the smelting industries. Of course, there is the outstanding case of the Trail smelter, which was one of the unique cases which was settled satisfactorily, not only by control measures, but by remedial work, and by the Institution of Recovery work which concerned the various sulphide dioxide gases, and sulphur gas, and ammonia sulphate, fertilizer, and so forth.

Today that represents an outstanding achievement and is an example to the world as one method, and is perhaps one in which the most has been accomplished in the smelting industry, where they recovered at Trail over 90 percent. of the sulphur oxides, which were formerly wasted, and turned them into profitable by-products.

We also have the problem of the Sudbury district, where smelting activities are carried on, on a tremendous scale, and some attempt has been made to recover by-products, such as sulphuric acid, but where much more could probably be done if there was some recognition taken of the fact that encouragement must be given to the development of <sup>the</sup> sulphuric acid by-products industry.

I regret to say that in the Sudbury district, they cannot find a market for all their sulphuric acid,



yet just a few miles away at Blind River, pyrites are being imported to make sulphuric acid for the uranium industry, and that is a situation which is extremely anomalous, and extremely difficult to understand.

In the Sudbury district, there is need for increased recovery of sulphur dioxide, and the development of markets which will enable more and more of the  $\text{SO}_2$  to be converted into useful by-products, and not be discharged into the air.

BY MR. MURDOCH:

Q. The importation is from another province, I take it?

A. Yes, the importation is from another province, but the point is, you could have had this sulphuric acid right next door to Blind River, in any amount, and that could have been produced at Sudbury, and the new sulphuric acid plant sets up a new pollution which has been created because of the tail gas from the Sudbury plant, and this sulphur trioxide mist has already, from what I have heard, started to destroy the timber in the vicinity of this new plant, and will continue to do so.

The fact that this land happens to be an Indian reservation, does not alter the fact that





you are getting fresh damage.

Now, carrying on with the smelters; my colleague, Doctor Kay, has been engaged for a number of years in the study of problems of arsenic in the gold-smelting industry in Yellowknife.

There you have another problem. There are, of course, problems associated with the problem in Manitoba, with the Hudson's Bay mining area, the Flin Flon area, and other areas, as well.

BY DOCTOR EVIS (Secretary):

Q. As another example of what you mentioned, the paper mills at St. Thomas import between 6,000 and 7,000 tons of sulphur per year, from Texas.

A. That is right.

Q. Which I presume they could get from Sudbury, if they recovered it?

A. You mentioned the pulp and paper industry. I might say, in passing, that in Canada we import over 400,000 tons of elemental sulphur per year, and more than three times that amount is wasted in the Sudbury district, yet the pulp and paper industry is completely dependent on this product, and is forced to importation of elemental sulphur. If you cut off the sulphur from the pulp and paper industry in Canada, you will destroy it.



In 1952, there was a rather disturbing situation created by the scarcity of sulphur in the world's markets, and the United States cut the Canadian imports of sulphur by 10 percent., and this created consternation in the pulp and paper industry, because they foresaw a corresponding cut in production, at a time when there was a high demand for pulp and paper products.

BY THE CHAIRMAN:

Q. What was the figure you used?

A. 400,000 tons.

Q. Of sulphur?

A. Yes.

Going on, very similarly, to the aluminium industry: we have a problem associated with that industry. There are problems in Arvida, Quebec, and elsewhere.

There is a big problem being created now by the operation of Aluminium Limited, in the northern part of British Columbia, where they have built a tremendous aluminium plant.

In the aluminium refining industry, if control measures are not taken, especially in the early design and construction of these plants, the effects will be quite serious, because vegetation,



forage. crops, and other plants which assume an extremely small amount of fluorine will keep accumulating -- this fluorine compound -- in the leaves and vegetation, and animals feeding on this vegetation can develop fluorosis. I have seen the effect in the west, and in the State of Utah, and other parts of the west. It can cause an appalling condition, where you have these animals, even in the initial stages, where their gums get so sore that even drinking water becomes agonizing to them, and water dribbles out, and they cannot chew their food, and then they get so they cannot even stand up, but they fall down on their knees. This is long before the secondary stage, such as lesions of the bones, and so on.

The aluminium industry can create an appalling problem with regard to the health of animals, even if they do not create any adverse effect, as far as humans are concerned.

From there, if we go to the fertilizer industry, where they make phosphate fertilizer, you have the fluorine problem, because it contains calcium fluoride as part of the constituents of the soil, and through the processes, these fluorides can be liberated into the air, unless very strong steps are





taken in that stage of the processing to control the fluorides.

In this connection, we have a new fertilizer industry which has been started up in southern Alberta, and they are sufficiently aware of the problem there, so that they have instituted a survey which started even before the plant was built, showing the levels of fluorine in the soil, water supply and vegetation, in an endeavour to control them after the plant came into operation.

That gives you a sort of an idea of what can be done in water-pollution control by industry, to make sure the measures taken are effective.

The reason I mentioned fluorine is because in the United States, both in the aluminium industry and in the fertilizer industry -- and even in the steel industry -- there have been some rather important fluorine problems.

One may ask why a fluorine problem in the steel industry? It is very simple. Any process which involves taking material from the earth's crust, and liberating it, can create fluorine.

This is true with blast furnaces, and open-hearth furnaces in many steel industries, and even in foundries, where they use fluorspar as a fluxing



agent, and high temperatures will release fluorine into the air, and which are, to some extent, released from brick plants, ceramic plants, and so on.

So, in considering the national health, fluoride or fluorine pollution is an important item.

Then, of course, we have specific chemical industries.

There is produced in the caustic soda industry, a chlorine which is liberated into the air, in an amount in excess of what they can market. The problem with caustic soda chlorine is that you can make it, but you cannot always sell the chlorine. They can liquify it, but if they do, they will only release the chlorine into the air.

This summer I was called into a situation where a plant in Alberta was releasing three or four tons of chlorine gas into the air, which was very dangerous to health.

BY MR. MURDOCH:

Q. It is a comparatively new plant?

A. Yes. But, mind you, we had an episode in Windsor several years ago which could have been very serious. That plant has since gone out of existence.

However, I have in my files a report which



would make your hair stand on end as to what happened in the city of Windsor at one time from the escape of chlorine gas. That is a situation which certainly has to be watched very carefully.

You then have the problem of the foundries. These can be very nasty problems.

Foundries will need special consideration, because, if you try to control foundries, they will tell you they cannot do anything about their operations, and that you will drive them out of business, yet, in Los Angeles, they have controlled foundry operations very effectively, by making them install the proper collection devices.

BY MR. BELYEA:

Q. Will you go into that further, Doctor Katz? That is particulate matter. How about gases?

A. There are two main problems in connection with foundries. One is that all the foundries have open cupolas, which should be discouraged, because in operating open cupolas, because of the high air blasting which is used, developing 30,000 cubic feet per ton of metal per hour.

They blow cinders and iron oxide and fly ash out of the tops of the cupolas, and some of these cinders are hot, and they can actually ignite





the roofs in the vicinity.

In addition, they will create a fluoride problem, because foundries are notorious for using calcium fluoride, as a flux.

At the same time, the use of coke in the process discharges sulphur dioxide too, and I think in the foundry operations, the main pollutants each one has to control are the dust, fly ash, iron oxide, and fluorides. They can control the fluorides by using sodium carbonate as a substitute fluxing agent. They can make just as good iron by doing so. They may not like it, but they can do it. It was shown in the foundry at St. Catharines that they could substitute sodium carbonate.

Now, with regard to the dust problem, iron oxides, and so on -- the particulates: they should be prohibited from operating open cupolas. They can use scrubbers, or use the type of equipment being used in the Los Angeles area.

Nevertheless, there is equipment available, and all it needs is simply to require that these installations will be made.

Q. We have one or two particular problems. They can put on bag collectors, or use electrostatic precipitators, but there have been complaints about



a couple of these foundries.

Would you say, if they did that, there would be no other odourous matters which would cause complaints?

A. Wait a minute, now. I would not say that -- quite. Because there is another source of pollution, that is, from the core oven of the foundry. If they use linseed oil, when it is discharged, without any control, it can cause a very odourous blue haze, and that is very objectionable.

Q. That can be controlled separately?

A. Yes.

Q. I have in mind one place where there are three cupolas, and there has been a general neighbourhood complaint, and they want to know whether they should spend \$150,000 or so, or had they better move out to some place else now?

A. They certainly had better move out, if they do not put in control/equipment. I would hate to be their neighbour.

Q. They are in an unfortunate topographical location, being at the bottom of a grade, and they are fearful that putting a bag collector on may not be the complete answer.

DOCTOR KAY: It certainly would not collect



the gases. However, I think that eliminating the particulate is about nine-tenths of the problem there.

THE WITNESS: Going on from there, in dealing with various industries: you have miscellaneous problems, in connection with the chemical industries, and so on. Each one has a particular problem.

What I am doing is simply illustrating that there are no lack of problems in Canada, requiring control.

If we go on from there to the transportation industry, we find we also have problems of considerable importance, such as railroads, the vessel traffic, motor cars, trucks, buses, and so on, on the highways.

As regards the railroads; some action, I believe, is going to be taken by the Board of Transport Commissioners this winter, with regard to stiffening up the regulations.

BY THE CHAIRMAN:

Q. Would you enlarge on that a little?

A. Yes, I will.

BY DOCTOR EVIS (Secretary):

Q. Did they receive a draft revision of the Order?

A. Apparently they are quite responsive to it. I did all I could toward educating the staff and the





Director of Transport, and I thought this draft you sent down was very good, in fact, an ideal one, upon which to start work.

We have not heard the story from the railroads. The first thing they will probably do will be to try to hack it down.

MR. BELYEA: For your information, I have seen two communications; one from each railway, and they state the cities did not know what they were talking about, and were not competent to talk about it, and the thing was completely impractical. They were not referring to the one we submitted, but to the one submitted by the city of Toronto.

THE WITNESS: The situation, as it stands, is this: I told the staff members of the Board -- and Commissioner Cross was also present at the last meeting -- that the Board of Transport Commissioners will have to modernize their regulations, and under the modernized regulations, locomotives should comply with the Order regarding emissions which are considered permissible for short periods, for instance, when building new fires, or when the equipment is standing in the stations, and so forth. Therefore, I suggested they have to set a top limit for the emission of smoke.



For instance, if a specific number of Ringelmann smoke is to be allowed for so many minutes, then number three should not be allowed, and so on, and so forth.

As far as I can see, the Commissioners, while we have only heard one side of the story, and seen one side of the picture so far, are very receptive. They indicated they are going to have a hearing this winter, at which all parties will be represented, the municipalities, the railroads, and so forth. That is where you will hear the arguments coming up for and against.

But I think the Commissioners are in a very receptive mood, and I feel confident they are going to revise their regulations. They have had considerable pressure put upon them by the city of Montreal, as well as from Toronto. Montreal is coming back to the Transport Commissioners again. You remember they had a Special Order granted in 1948, and they want that made more strict.

MR. BELYEA: I am glad to hear that, because they told the city of Toronto that the Montreal Order was completely acceptable to them, and, therefore, should be satisfactory to Toronto.

THE WITNESS: It is not satisfactory to



Montreal. I drafted their latest proposal, and it is considerably more strict than the 1948 Order. I think it is moving on.

I told Commissioner Cross, frankly, that if the Board of Transport Commissioners does not act promptly on this question of the control of railway smoke, they will have a tremendous barrage of criticism.

I recalled to them the publicity they received in 1955 in Windsor, and a number of situations in Ontario, when this Committee was going around visiting the Windsor-Detroit area, and I think these are bound to have some influence.

As regards the fines' clause, and imposing penalties: they say the exact fines as stipulated in your draft may not be applicable, because it imposes penalties, and they are awarded in the Railway Act. That may be a matter of argument.

DOCTOR EVIS (Secretary): We realize that, and I presume that the Act should also be amended.

THE WITNESS: Of course, you can work with Parliament there. There you can get to work on a higher level.

MR. BELYEA: I think the penalties go back to 1908, too.

THE WITNESS: Yes, they probably are pretty





old and out of date, I do not think the Railway Act has been revised for some time.

Now, going on to vessels: I have been travelling across Canada on several occasions, and have discussed the matter of vessel smoke with the representatives of various cities, and right through from here to the West Coast, they are very much disturbed about the situation created by the vessels in the harbours, and so on.

It is fairly clear, I think, that where vessels are engaged in international commerce, or they are operating along the boundary-line waters, along the boundaries between Canada and the United States, the problem is a Federal one; that is, the control of vessels on the Great Lakes and on the St. Lawrence, in transit, is a Federal problem.

BY THE CHAIRMAN:

Q. I do not think we are concerned about them in transit; it is when they are docked.

A. Yes, the municipalities have the power over vessels which dock, and I think that jurisdiction should be exercised. This has already been tried out in Windsor, where the city of Windsor took action against several vessels of the Canada Steamship Lines, which were docked, and they were fined.



The city of Vancouver says it is going to take action against vessels docked in the harbour area there.

You can take action in Toronto. You have the precedent for it. You do not need to worry about the outcome.

BY MR. BELYEA:

Q. Are you referring to the Windsor precedent?

A. Yes.

Q. It was heard only in the first court; it has not yet gone to a higher court.

A. I know lawyers, and I am treading softly there, but there seems to be a great deal of basis for the idea that the city -- and certainly the province -- can have jurisdiction right up to the international boundary. That is very clear. Vessels in harbours or tied up at docks, are under the control either of the province or the city.

Q. I believe you are right about that, but I wonder if you have seen a legal document or opinion?

A. I will stick to my field, and I will not barge into law. The legal men can untangle that.

Q. The shipping authorities will try and say we have not jurisdiction.

A. Referring again to the vessels' smoke problem;



we have effected, under a system of control, operated by the International Joint Commission, considerable improvement in the pollution of the air by smoke from vessels in the Detroit River area.

BY MR. MURDOCH:

Q. I would like to correct you there, Doctor Katz. You have corrected it in the Detroit River in the location of downtown Windsor and Detroit, where your observation station is, but you have not corrected it in the parts of the Detroit River up by Amherstburg. The vessels seem to stoke up, and put out the pollution in the Detroit River, in the neighbourhood of Amherstburg, so they can make a quick, clean run past the observation station in downtown Windsor and Detroit.

A. I agree with you we have not cleaned up the whole of the river completely. But we have protected an area which is worth hundreds of millions of dollars on the Detroit waterfront.

The city has spent hundreds of millions in the complete rehabilitation of that part of the town.

If I were to choose as to where the smoke would go, I would rather not have it go by the hearts of Detroit and Windsor, where most of the people are.





THE CHAIRMAN: You would put it down on Mr. Murdoch's house?

MR. MURDOCH: You should have been a politician.

BY MR. ELLIOTT:

Q. That is, in transit?

A. Yes.

Q. You said they were not in transit?

DOCTOR EVIS (Secretary): No; Mr. Murdoch said that.

THE WITNESS: The problem can be controlled still farther, because we are still confronted with the problem as to what we should do with these hand-fired vessels. It was recommended in the final report of the International Joint Commission that a system of local control be instituted, with necessary regulations, and we also would like to have, in time, all hand-fired vessels eliminated from shipping on the Great Lakes and the St. Lawrence Seaway system. I do not know how long it will take. They cannot do it overnight.

At the present time, the small canalers serve a vital purpose in trans-shipping cargoes from the lower St. Lawrence up to the lakes, and if you remove them, you might cause economic chaos on the



Great Lakes.

But the vessel owners know they have to convert the vessels to better firing equipment within a limited time. There are several factors which will make them do that. One is the opening of the St. Lawrence Seaway system, and the other is the fact that we are going to have some kind of international law -- I do not know whether it will be truly international action or whether the Government of Canada will take action on one side, and the United States on the other -- to relieve the emission of smoke at certain levels, and that will mean removal of the vessels which cannot conform, but in all our cities there will be, in a few years, a drastic change in the vessel-smoke situation on the Great Lakes and the Seaway system.

BY MR. BELYEA:

Q. What is a reasonable time to change over? Five years?

A. I do not know. They probably will say something in the final report, and I do not want to say anything which might antagonize the International Joint Commission, because they want these details discussed by governments, both in Canada and the United States.



I am sorry, I cannot say definitely.

Realizing that, although something has been done in some parts of the work in the Detroit-Windsor area, we cannot withdraw completely and create a vacuum. We received authority to carry on an investigation in regard to controlling the vessel-smoke problem, until such time as this new Authority is created, and a law is devised which will make it legally enforceable.

BY MR. MURDOCH:

Q. To what do you refer when you say the "new Authority"?

A. Briefly, there will be some local regulations and the assignment of some court to try violators, and then there will be probably some Board which will be responsible for the dissemination of information, and hearing cases, and where the violation may be based on accidental happenings. Where there is a clear-cut reason for giving a company time to conform with the law, that probably will be done.

However, I do not think you could do that without a Board hearing, because there are always cases where you have reasonable excuses.

BY THE CHAIRMAN:

Q. Just along this line further; let us assume





we set up a Board in Ontario to operate this air pollution control?

A. Yes?

Q. Will you give us your idea of how we can make the law effective? In the over-all Ontario picture, how are we going to make industry come under the law?

We can pass the law, but how will we make it operate? There is no point in passing a law which will not be practicable and workable .

Have you any comment on what should be done, whether at provincial level or municipal level?

A. Before I go into that, I would like to make it clear that pollution may be a local problem within limitations, but it can go far beyond local boundaries. So any law which is to be considered, must start at the provincial level.

If we find, for instance, that in a particular municipality, control is effective, but in a neighbouring municipality, no attention is paid to control for, let us say, financial reasons or indifference, then you create a situation where you are actually polluting your neighbour, and yet there is no authority to look into it. And since pollution is governed by the vagaries of wind, water and



meteorological conditions, you may have some authority at a higher level than the province, but you should start with the province, which has jurisdiction over all industrial operations, and real estate matters within the province.

Then you have legislation which can be set in very general terms, confining pollution to certain limits, but not being too dogmatic about these limits, because you want to be able to provide room for the issuance of periodic regulations built around specific situations, therefore, you do not want to make the law too specific, but you have to give some Board or some department authority to issue regulations as they see fit, based on sound judgment and investigation.

For instance, what good is it today to say that you will allow, let us say, .85 pounds of dust per 1000 pounds of gases, with a certain CO<sub>2</sub> content, when tomorrow you may find that is even too much, and that there is equipment, at reasonable cost, available which can cut that figure in half.

Q. What about enforcement?

A. Here is a point. If you have the law clearly stated that it is privileged to do thus and so, then the question of enforcement should be



delegated, first of all, to some competent technical body which will have the ability, not only to administer the provisions, but to make investigations and surveys.

Then, if it is its judgment, or the judgment of a hearing Board associated with it, that a certain industry should be given one year or six months to instal the necessary equipment, and that could be done, because, after all, it does not serve a useful purpose to close down an industry, because of the wording of a certain law. That is not the objective. The objective is to control pollution, and to force compliance where there is reasonable means for compliance, and the offender is clearly at fault, if he does not comply.

But if some industry can come and say to you, "I cannot comply with these provisions, simply because it would drive me out of business", or "There is no engineering equipment available at yet", we want to make a study to determine the type of engineering equipment which should be applied to the process, and then there should be within the law, scope to enable them to be governed accordingly.

I will give you a concrete example. For instance, consider the Sudbury smelting case. If,





today, you ordered these smelters to cease emitting the sulphur dioxide, what would happen? Their nickel is a tremendous asset, not only to Canada, but to the world. You cannot shut them down, and we then are faced with the problem in that they are causing pollution. They pay damages every year under the Arbitration Act, and so on.

If, on the other hand, encouragement was given to them to seek ways of increasing their output of sulphuric acid, and perhaps starting up a fertilizer industry, it might be very beneficial.

Q. There has to be a law to take it up?

A. That is right.

BY MR. MURDOCH:

Q. Doctor Katz, you appreciate this plant of which you spoke at Sudbury, has made arrangements with the C.I.O. to collect most of this discharge?

A. I know all about that. I know exactly what they are doing. I am <sup>not</sup> singling them out for any special reason.

That Company has great technical ability, and it has men of high calibre, and I do know something also about the pollution which is being caused.

I am just using it as an example to indicate



that if you have no way to apply the law, it is not sufficient simply to have a law, and have people going around enforcing the letter of the law, without taking into account the spirit of it, too.

BY THE CHAIRMAN:

Q. Do you think enforcement would be quite a problem in Ontario, Doctor Katz?

A. It might be in certain industries, for instance, the foundries.

I would say, if you pass legislation which many of the foundries could not live up to -- they could in time, if you gave them the time, and if you also assisted them in investigating their particular problem -- I think, then, they could do just as well as the foundries in the Los Angeles area.

Q. We know that, but I can almost hear them saying that the equipment is not available in time.

A. Yes. But it comes back to the question of how you would enforce the provisions of the law.

I think that something in the nature of a Hearing Board must be associated with those, and a staff must be competent and of good calibre, so that they can undertake investigations, and can assist industry in meeting the requirements of the law, by indicating, in some cases, how they could do it, where



there is no equipment, and in other cases, indicating certain modes of attack so that industry itself can spend the money on research, to solve the pollution problem.

Then you must have along with that, the licensing or registration of all sources of emissions, because the department or agency which will enforce the law, if they have no knowledge of the facts, are in no position to assist either industry or the public. So you can take your choice. You can have compulsory registration of all the sources, with some idea of the major emissions, and the type of outlets, the chimneys, for instance, and the quantities emitted into the air. That is very important.

Or you can require licensing, which will give you the same information, except that you might want to attach a fee to the issuance of the licenses.

There is a danger about this licensing system and it is this; you might find your staff has "bogged down", and simply not looking at plans and specifications.

Many industries have better qualified engineers, who know their own designs, and are better





qualified to pass on the specifications than you, sitting in a government office, because they are looking at specifications and plans, and you may have highly-specialized engineers within a particular industry, who have actually designed the process.

So you must not allow the organization to become "bogged down" in details, but you must have the facts, and there must be some way of making industry give information in regard to the sources of emission, the amount of contamination, the discharge problem, and going on to the properties and taking stack samples, and making stack analyses, if necessary. That should be inherent in the law.

Then I think you should provide for a certain amount of research to assist municipalities in surveys -- if we are coming down to something by which enforcement can be arranged on a Federal level.

Many municipalities may not have the funds available to carry on proper air-pollution control. This you might want to do. They might like to have clean air, but they just cannot pay for it. Therefore, it devolves on the province to help them out.

In other words, a provincial organization could assist a city in making surveys; they could find out if there is need for small towns to have an



air-pollution control agency established on a municipal level; they could decide that pollution is not high enough yet, or they might decide it is.

On the other hand, they might decide it is a case of a specific industry, and, therefore, make industry do some housecleaning by looking after it, on a provincial level.

Then, too, there is always the matter of disseminating information. The provincial agency would disseminate information on air-pollution control, and associated subjects, both to municipalities and industry.

Q. What about public education?

A. Yes. That is part of the picture.

Then there is the question of enforcement at the Federal level.

Q. You know something about that?

A. Oh yes, I do. We are extremely anxious to co-operate with the provinces or municipalities.

You know, as well as I do, that the air-pollution and related matters are the responsibility, first, of all the provinces. On the Federal level, all we can do is to advise or assist at the request of the provinces. In other words, we can assist them if we are requested so to do.



BY DOCTOR EVIS (Secretary):

Q. Do you think the Federal government would assist to the extent of giving to a specific company, tax relief for controlling this air pollution?

A. I am afraid that is one question which I just cannot answer, because that takes us into the realm of finances.

BY THE CHAIRMAN:

Q. You will leave that to hon. Mr. Harris?

A. Yes. I do not dare open my mouth, when it comes to that.

Q. Do you think there should be some clause in the legislation, providing that the provincial or Federal governments could give them assistance in building equipment with which to control the pollution?

A. I would say "Yes" in principle. I would be in favour of special consideration for large industries which might require to spend many, many millions of dollars to control pollution.

After all, these industries can "sit on the fence" and say, "You want us to control pollution; if we have to spend \$50 million on it, we certainly are not going to do it, unless you prove to us it is detrimental to public health".





When they "put you on the spot" in that way, you may have an awful time proving it is actually detrimental to health.

But if you can show them it is in the interest of good relations, and you are prepared to assist them a little, and show them how they can do it, they probably will.

BY DOCTOR EVIS (Secretary):

Q.       What I have in mind is this; I do not know whether you have given it any special consideration. Let us consider a company manufacturing roofing material. There is one in Brantford that is using tars, and we have one in Hamilton, and there are terrifically bad odours coming from them, the only difference being that one is obeying the law.       There is keen competition between industry, and that competition does come into it, to some extent, and they claim they have not the money to put in this kind of equipment which would eliminate those odours, and so on.

A.       Certainly, if it is possible to assist industries which are operating on a certain economic level, with a small margin of profit, or something like that, or where they would be adversely affected if they had to spend a great deal of money on pollution control, they should receive some consideration.



However, that is my own private opinion.

BY MR. MORNINGSTAR:

Q. We have one industry which moved into Quebec province, as the province got after them.

DOCTOR KAY: I think there was a Bill presented to that effect in Washington, which called for tax exemptions.

THE WITNESS: Or rapid amortization.

BY MR. MORNINGSTAR:

Q. They have to pay municipal taxes on their investment?

A. Yes.

BY MR. BELYEA:

Q. Do you know if the Bill was actually passed?

A. It did not get through, but I think it will come up again.

BY MR. ELLIOTT:

Q. That was covering the whole United States?

A. Yes.

Q. On a Federal level?

A. Yes.

Q. It would cover every State?

A. It would, yes.

DOCTOR KAY: It would cover the corporation taxes.



THE WITNESS: Coming back to the Federal level; as you know, the Department of National Health and Welfare itself has instituted, since the first of January, 1956, a new Advisory Service on air pollution, and we certainly are anxious to assist the provinces in that field.

We have already been called out to Manitoba and Alberta, and to British Columbia. We have assisted the city of Vancouver, and the Manitoba Department of Health in connection with a rather bad oil-refinery problem in Winnipeg in connection with a new oil refinery which was built just recently.

BY THE CHAIRMAN:

Q. Do they call you in for financial help or scientific help?

A. Scientific help. It is the question of financial help in which you are interested -- ?

Q. Always, always.

A. I cannot speak with any authority on that, but I can tell you what we are trying to do. We are trying to initiate a programme of co-operation, something like the Health Grant services, and I think from what hon. Mr. Martin told you, that if a request came from the provinces, it would be very well considered.





Q. Yes, he indicated that.

A. Yes. I may say that already the province of Manitoba is being assisted financially in connection with air-pollution work.

Not only that, but we are assisting the cities of Vancouver and Winnipeg, but in the expansion of this air-pollution investigation and study, we would like to see a national network organized, which would embrace the entire country, and would exchange information, so that you would know in Ontario where the pollution areas are, and would also know what they are in the other parts of Canada. That would give you an idea of how effective your control organizations are. This plan is being presented to the Dominion Council.

THE CHAIRMAN: You have really outlined the situation. I am sure some of the members of the Committee will have some questions they would like to ask. You have run right down the line; you have included scientific advice, technical advice, and financial assistance.

There is no doubt about the Federal co-operation; it is there.

DOCTOR EVIS (Secretary): While the members are thinking of questions to ask Doctor Katz, perhaps



we could hear from Doctor Lossing on the health aspect.

DOCTOR LOSSING: Our main efforts are really in relation to what health problems are from air pollution.

THE CHAIRMAN: Will you tell the Committee what your official capacity is?

DOCTOR LOSSING: I am Chief of the Epidemiology Division.

THE CHAIRMAN: You had better tell the members what that is.

DOCTOR LOSSING: It comes under the study of epidemics. It is a study of the causes of disease in the population, and studies of people in relation to their environment, and studies of the natural courses of disease in the population.

I do not know whether I can tell you anything about the health side of it, which you have not heard already. I certainly think it is a big problem, potentially anyway, and it is a problem which has, until recent years, received but very little attention, and I think, even at the present time, it is not receiving the attention its importance justifies.

There is one thing I might say in passing, which is unusual in investigations of health aspects



of air pollution.

In investigating diseases, we consider the diseases, and look for the causes. Here we think we have the cause, and we look for the disease. It is really a reversal of the usual order of investigations, because I think we have only been working on the fringes, and I think we do not know -- if we are honest -- too much about health problems which may be caused by air pollution.

But I think there are some areas from which we can draw some inferences at least, and some from which we can perhaps draw some facts.

I think the first field is in animal experimentation. We know that in the laboratory on our experimental animals, we get some reaction from certain concentrations of substances.

I would not say that those results could be transferred directly to humans. We always have to think about the difference in the reactions. Human reaction may not be the same as the reaction of an animal, but there are some inferences~~to~~ to be gained there.

I think the second point is what can be learned from industrial situations.

We know when we have a certain concentration of certain substances in an industrial situation,





that certain effects on health follow. There again, I think we all know that industrial situations cannot be related directly to air pollution, but at least it gives us some basis.

Air pollution is a very complex thing; the constituents are complex. It is not as simple a case as where you have a certain concentration of a certain pollutant. Probably there is not only the response to certain pollutants in the air, but there is probably the additive response of the constituents which are there regarding certain effects, which may add up to a certain amount.

Then the third thing is there are well-known experiences, of which you are no doubt aware, where there have been overwhelming concentrations of pollution in the air in certain places, for short periods of time, such as the London episode, and the ones at Donora, and the Meuse Valley, and that sort of thing. There again, it was shown that people died from this high concentration of pollutants. But that certainly does not represent what happens in an ordinary urban atmosphere. Those were extreme situations, a combination, perhaps, of some meteorological condition, and some geographical condition, attracting the pollution in to certain



localities.

Fourthly, there are what we term "morbidity studies", that is, the death and sickness amongst the population.

It would seem that air pollution might affect people in three different ways. The first I have mentioned, London, Donora, and places like that, where there was very high concentration of pollutants for a short period of time.

Then, I think the second situation might be the short-term illnesses which would occur from variations in the concentration in urban atmosphere. That would come about through irritative effects on the mucuous membranes of the eyes, nose and throat, and the respiratory system, and the lowering of the resistance of these membranes to infection.

Thirdly, an effect which I think might well be expected, is what I might call the "long-term effect" -- the result of repeated exposures to the amount of pollution which we find in city air. I think lung cancer would be a good example of that. It would be a good place to look at lung cancer, as a measure for that.

It is known that when carcinogenic substances are applied, the first site of cancer is at the point



of contact, and it is known, too, that long periods of exposure are required, possibly twenty or twenty-five years. Therefore, I think that lung cancer is a disease which could be used as an indicator.

Over the past few years, some very unusual things have happened when we look at lung cancer. The death rate amongst women has practically doubled, and the death rate amongst men has increased about five times.

THE CHAIRMAN: From lung cancer?

DOCTOR LOSSING: Yes, from lung cancer, over the past twenty years.

So if we think in terms of cities and long exposures, we would think of something which has increased in urban cities, and is probably something we breathe.

I do not need to remind you of the interest in the statistical association there has been between lung cancer and cigarette smoking, but from some studies which have been made recently, it has been indicated there is more to it than that. There must be some other factors in addition to cigarette smoking.

There is one study I would like to mention which has been done in England, which I think is very





interesting.

They looked at lung cancer death rates in three situations; in an urban area -- Liverpool, actually -- in an area in the Midlands, partly urban and partly rural, and a rural area in Wales, and they found, upon looking at cigarette smokers, that the death rate varied, higher in Liverpool, less in the Midlands, and still less in the rural areas. This was from amongst cigarette smokers.

It has been known, of course, that the death rate in cities was higher than the death rate in the country. We know that the death rate is higher in the cities. But this investigation looked at smokers in the urban and rural areas, and found it was highest in the urban, and lowest in the rural.

It seems to me, if you study the Benzpyrene in the air, the conclusion will be that the difference between the low rate of deaths among cigarette smokers in the country, and the higher rates of deaths among cigarette smokers in the cities, could be explained by the amount of Benzpyrene in the air, highest in the cities, and lowest in the country.

DOCTOR KATZ: You might mention how Benzpyrene originates.

DOCTOR LOSSING: I cannot answer that question.



Perhaps you can, Doctor Katz.

DOCTOR KATZ: This has been related to the concentration of Benzpyrene. It has been shown to be present in virtually all products of combustion, whether it originated from coal, or oxide gases, gasoline engines, or trucks and buses.

We found Benzpyrene in the Windsor-Detroit air. It has been isolated in the air in Los Angeles. Benzpyrene has been isolated in the air in the city of London, and other places in England. It looks as if it can be found anywhere, and also in special studies, it is found in polynuclear aromatic hydrocarbons, and many of these substances are carcinogenic, and they produce cancer.

They found that it is present not only in the combustion products, but originally they are even present in all fuels which are not highly refined.

For instance, consider in a more or less pure type of fuel oil, naphtha, or anything which is not as highly refined as, let us say, gasoline, you will find some of these already there, even before you burn the fuel, and then it rises in the process of burning the fuel.

They are particularly found in the soot of tar-producing substances.



BY DOCTOR EVIS (Secretary):

Q. There are also the aliphatic types of hydrocarbon?

A. Yes.

Q. Will you say something about that?

A. It is now used by Dr. Paul Kotin, in the Los Angeles area, and Dr. H.L. Falk. They have found a certain aliphatic type of hydrocarbon, as distinct from the aromatic, which can also cause cancer in experimental animals.

This points up the seriousness of having too high a level of pollution from combustion products in the cities.

I have seen some attempts made to relate the seriousness of air pollution on a national level to the scale of industry and population.

In the United States, they claimed this critical period was reached somewhere back before 1948, sometime during the war, and soon after, and we know it existed then.

I think in some areas in Canada, they have reached the critical level, where, if we do not do something about the air, we will run into great trouble. In many parts of the country, the air is already over-loaded, so we are actually causing damage.





I think we have the necessity for controlling air pollution in all areas, not only for its effect on health, but its effect on plants and vegetables, agricultural crops and forests, and also on the more serious effects, including economic effects.

You can make all kinds of calculations, and come up with the fact that about \$10.00 or \$20.00 per capita is lost directly from the effects of air pollution.

That means in a metropolitan area like Toronto, for instance, -- taking an average figure -- you will find about \$15 million, and perhaps up to as high as \$30 million per year is definitely lost because of the direct effects of air pollution. The same thing would apply to Montreal. You would also have there from \$15 to \$30 million, and in the two areas together, you have upward of \$60 million per year lost due to the effects of air pollution in those two cities alone.

From the country as a whole, we have some fair statistics from the United States Department of Commerce, and the United States Geological Survey, which showed that a few years ago, in the United States, the direct economic loss was at least \$1,500,000,000 annually, which makes, over the whole country, including



the farming district, a per capita cost of about \$10 per person.

Now, contrast that with the amount of money spent on air pollution in the cities, and you will find that it runs to about eight cents per capita. In the Los Angeles area, it may run a little higher now; I think there it is up to about 35 cents. But most cities are spending eight cents on air pollution, which is costing over \$10 per capita.

I think you will agree that is an important thing to remember.

BY DOCTOR EVIS (Secretary):

Q. And the \$10 is probably a very conservative estimate?

A. I think so. You arrive at these figures, and then if you lump in with them, the rural areas, and take specific spots, cities like Hamilton, Montreal, Toronto and Windsor, and Vancouver, and so on, you would get a much higher figure.

THE CHAIRMAN: Have you finished your discussion, Doctor Lossing?

DOCTOR EVIS (Secretary): Before Doctor Lossing starts again, may I say that I saw in England, where the British Minister of Health recently issued a statement to which Mr. Belyea drew my attention,



that in the non-smokers' field, he said that the cancer incidence amongst non-smokers --

MR. BELYEA: This was in answer to a question which a member of Parliament asked in the House of Commons in July. He asked the hon. Minister, Mr. Turpin, and the answer was given that out of a group of non-smokers, as between the rural and urban areas, there was a higher incidence of cancer in the urban areas than in the rural.

DOCTOR EVIS (Secretary): I think we will get the Hansard for that, to see what the situation really is.

MR. BELYEA: This is the first time I have heard an hon. Minister of Health make a positive statement.

DOCTOR LOSSING: There was another study which I mentioned a while ago, which I think is also very interesting. That is the study in New Zealand. They looked at the immigrants coming to New Zealand from the United Kingdom, and they broke them into two groups, those who arrived when over the age of thirty, and those who arrived while younger than thirty. Then they looked at the lung cancer death rate amongst those people.

The figures were studied, and they showed





that the amount of smoking is the same in New Zealand as it is in England, so they took out the factor of smoking.

They found that the death rate was lower amongst those born in New Zealand; the next highest was amongst those who arrived from the United Kingdom while under the age of thirty, and the highest was amongst those who arrived from the United Kingdom into New Zealand, who were over thirty years of age. They felt it was something in the environment of the United Kingdom, from whence these people came. The thing which was common to them all, was the amount of air pollution. Those were inferences, but they added a little flesh to the bones.

We have had a little information in the Detroit-Windsor health studies, about which I am sure you know.

In that study, which was run under the auspices of the International Joint Commission, groups of people were kept under observation for a period of two years, and the households were visited every two weeks, and records were taken of all their illnesses and their symptoms. Those two groups of people were alike, as far as it could be ascertained, in age, in their sexes, their incomes, the types of



housing, and so forth. Several of one group lived in an area where pollution was higher, and the other group lived in an area where pollution was lower. They tried to set it up in such a way so they would have equal factors, as nearly as possible.

The analyses of the results which has been recorded has not so far shown any difference between the amount of illness in people living in the higher-polluted area, and people living in the lower-polluted area.

An attempt was also made to look at sicknesses in relation to the amount of pollution in the air, to see what happened at times when the pollution was high, whether sickness was higher at that time. But the same thing has happened there. It has not been possible to show a relationship, but that does not mean that air pollution does not have any effect on health, but it was not yet possible in this particular circumstance, by the method which was used, to watch the amount of air pollution present, and it was not possible to show accurate results.

I should say that these people who were being observed were not picked out for any particular reason. They were ordinary people, but, as I mentioned earlier -- and as you know -- the episodes,



such as at London and Donora , where they had these terrifically high concentrations, people did die, and it was the elderly people who died, or people who were suffering from cardiac or respiratory handicaps, therefore, it was reasonable to think they were more susceptible than the man on the street.

We tried to take advantage of that fact in a little study we did in Ottawa this summer. We started with the elderly people who had cardiac and respiratory symptoms. We first studied the conditions in the St.Vincent Home, a hospital here for incurables.

For about two months, we had 106 of these people under observation every day. At the same time, measurements were made of the amount of sulphur dioxide in the air, and the amount of particulate matter. We found out they had certain symptoms which were present a good part of the time, which made it part of their very existence.

These people were interviewed every day, and were asked whether the symptoms were better or worse, or were the same as on the previous day.

What we are trying to do now is to show what relationship there may be between variations in the concentration of air pollution, and the changes





which were seen in these people.

THE WITNESS: I mentioned the Windsor-Detroit area, because a similar study was carried on there, and the one thing we could not do was to collect the spill-over of pollution from the sources affecting the high-pollution area , into the so-called low-pollution area. In other words, there were many times when the level of our low-pollution area was as high as it was in the high-pollution area.

BY DOCTOR EVIS (Secretary):

Q. The differential was not great enough?

A. No, the differential was not very great.

MR. BELYEA: Did you not go out to some other area, such as Tilbury?

THE WITNESS: Unfortunately, I got into enough difficulty in the smaller towns, knowing the level of sickness in those smaller towns.

I think in Harrow, they had a higher age group, and had a higher incidence of sickness, to begin with.

It so happens in these small towns, probably the younger population has left to work in the larger towns, and left these retired people in the smaller towns, consisting of the older-age group.

BY DOCTOR EVIS (Secretary):

Q. You could not match your groups?



A. No. We could not match the groups.

All we did get out of our study was a great deal of information on methodology, from which we could perhaps make future studies.

Doctor Lossing knows how to do it, and I think some interesting results will come from the Ottawa study, even though the pollution level in Ottawa was not too high.

Q It may be interesting to do a study in downtown Toronto, and compare it with Richmond Hill, for instance?

A. There is one idea which we have, which has to do with the efficiency of the sampling material.

We want to find out an area which is a peak area-- one or more -- where we can undertake a health study and come up with something sound. We do not know whether it will be Toronto or Hamilton --

BY THE CHAIRMAN:

Q. Surely not Hamilton?

A. -- or some other place, but the point is if we once "get going" on the sampling work, and find out, not only in our province, but in others, what is going on in other localities, then we could decide on some one or more key areas, where a health study could be conducted, and sufficiently important, so I



am sure the funds for it could be obtained.

If we can get this organized, we would be prepared to assist in making analyses, and having samples sent to us, and we would make the results available, as you would to us.

I think, by and large, we would come out with very, very interesting, co-operative investigations.

BY MR. BELYEA:

Q. You say now that some time in the future, somebody like yourself, or other experts, would test the air and sample all the components of it, and be prepared to say whether or not the atmosphere had reached the tolerable limit for health?

A. Yes, we could do that.

As I said before, we have this advantage; we have already tested out certain methods in connection with trying to determine the effects on health. We have gained such valuable experience, and on the basis of the experience gained in the study in the Windsor-Detroit area, we could no doubt proceed, because before that time, nobody knew to whom to go to make an investigation.

BY MR. ELLIOTT:

Q. Have you made any studies in Ontario, or any place in the world, of animal life being affected





by polluted air?

A. There have been studies from time to time at universities, and there are studies going on by the National Health and Welfare, of animals, and there have been studies carried out by the Defence Research Board, to record specific contaminants . There is information on certain types of toxic gases, and so on.

The United States of American Conference of Governmental Hygienists set limits of the maximum allowable concentration of pure toxic materials, but there is a great difference trying to apply that information to the atmosphere, because there you are not dealing with one contaminant, but you are dealing with a multitude of contaminants. You are not dealing with one pure substance, but with many which are in an impure state, therefore, you cannot use that information, as the industrial hygienists realize its limitations.

For instance, the limitation for sulphur dioxide, as regards health in industry, has been set at about ten parts per million. That means if a man is exposed to sulphur dioxide -- oh, by the way, many of these limits are being reduced. For instance, right now, many advocate five parts per



million.

That is perfectly all right if you are not exposed at the same time to something else, but if you go to the outside atmosphere, you do not have five or ten parts per million of sulphur dioxide, except in certain over-exposed areas. What you have is of the order of, say, one or two-tenths parts per million, but you have a hundred other things with it. You are breathing smoke, and you are breathing aldehydes, and carcinogenic hydrocarbons. You are breathing hydrocarbons yourself, and also fine dust particles which can contain twenty or more different elements. Therefore, your exposure is of an entirely different type.

BY MR. ELLIOTT:

Q. Have you any proof that fumes from automobiles are hurting vegetables in this country, or the United States?

DOCTOR EVIS (Secretary): Oh, sure.

THE WITNESS: Yes, certainly. We carried out an investigation on vegetation in the Windsor-Detroit area, and we found vegetation is being affected by local sources of pollution on the Canadian side.

We went into it a little more fully, and analysed the chlorophyll contents of a number of different



species of vegetation, and we found that plants which were affected by urban pollution were deficient in chlorophyl, and in general, were producing a much lower amount of photocynthesis than plants living in comparatively clean air.

There is no doubt that the reason why, in certain cities, you cannot grow certain types of trees properly -- for instance, conifers -- is related to air pollution.

BY DOCTOR EVIS (Secretary):

Q. I cannot grow gladioli at my place, because of the terrific traffic going up Poplar Plains Road, and down Russell Hill. It is rush, rush all the time, and it practically impossible to grow gladioli, as they are very sensitive.

I tried growing them this summer, but it was a miserable failure. I used good loam, and RDX fertilizer, and everything was done, but they would not grow because of the automobile fumes.

MR. ELLIOTT: Life expectancy has risen over the last twenty years considerably, and you claim that all these things are affecting people, and yet while there has been air pollution, the life expectancy is going up.

DOCTOR EVIS (Secretary): That is in spite





of air pollution.

DOCTOR LOSSING: Communicable diseases are more controlled.

MR. ELLIOTT: But could not life expectancy go considerably higher by cleaning the air?

THE WITNESS: You would increase life expectancy by remedying the communicable diseases.

DOCTOR LOSSING: I was going to make a brief statement regarding another investigation, that is, an investigation into lung cancer.

We sent out 200,000 questionnaire forms to D.V.A. pensioners or their widows, and we received back about 1200 forms.

We asked about the amount of smoking by women, and by the men, and we asked them where they lived, whether in the cities, towns, villages or country.

Through the Department of Veterans Affairs, we will know about the cause of death, when death comes.

So we can secure a great deal of information from that, and this can be used, I think, in estimating the effect of air pollution, if we assume that pollution is higher in the city areas, than in the country areas.

We can look at the urban smokers, and the



rural smokers, and we can separate out these two factors.

BY THE CHAIRMAN:

Q. From what you have said, there is no conclusive proof that smoking is any contributor to lung cancer?

A. I think that the association between cigarette smoking and lung cancer has been pretty well shown.

Q. That there is?

DOCTOR LOSSING: I think so. However, I do not say that is the complete story. We have to add in a great many other things. For instance, I think if cigarette smoking is not the murderer, it certainly has been at the scene of the crime.

DOCTOR EVIS (Secretary): It has also been said if the effects were immediate, people would not smoke, but since it takes twenty-five years --

MR. BELYEA: Is there any other type of cancer involved, such as blood cancer?

DOCTOR LOSSING: I do not know that I can answer that. I do not know of anything which would indicate that.

THE CHAIRMAN: How would it be if we wound up the professional part of this session?

DOCTOR EVIS (Secretary): May I ask Doctor



Lossing one more question?

THE CHAIRMAN: Certainly, Doctor Evis.

DOCTOR EVIS (Secretary): People who live in cities find a very heavy traffic volume now, even downtown, and so on. What do you think the effect of carbon monoxide is on their red blood cells? Does that create a certain danger of their red blood cells becoming useless, for example? Does that not give them that tired feeling, common to a city dweller?

DOCTOR LOSSING: As you know, carbon monoxide has an effect on the hemoglobins, which prevents it from picking up certain amounts of oxygen. I would not have any proof of what the effects are from inhaling air at street levels.

DOCTOR EVIS (Secretary): The point I want to bring out is that carbon monoxide combined with the hemoglobins in the red cells prevents oxygen being used in sufficient quantities?

DOCTOR LOSSING: That is right.

DOCTOR EVIS (Secretary): Would you care to say something about the study of hemoglobins in the United States?

THE WITNESS: Yes. In the States, there have been a great many studies of the effects of carbon monoxide on individuals, in city-traffic





situations, such as tunnels and the traffic situation through the Holland Tunnel, and also studies on traffic volume, and so on.

It has been shown that the level of carbon monoxide in the blood can become fairly high, and in certain cases dangerously high, in the case of these traffic policemen who are directing traffic, and at the same time are being exposed to the exhaust fumes from hundreds and thousands of vehicles during their tour of duty.

The effect of inhaling carbon monoxide, as you have been told, is to reduce the capacity of the blood to carry oxygen to the tissues. The reason for that is that carbon monoxide, combined with the hemoglobin in the blood, at the rate of 210, have been without a combination of oxygen.

In other words, if we have pure air containing 21 percent. oxygen, and this air, for instance, was being breathed, contained one-tenth of a percent. of carbon monoxide, if you multiply that by 210, you will find you are in a lethal atmosphere, because you are breathing the mixture which is really 50/50, so you would saturate your blood in a short time, <sup>with</sup> 50 percent. of carbon monoxide, and 50 percent. of oxygen, and if you breathe that



atmosphere, you are inhaling 50 percent. carbon monoxide, and if you are not taken out of that atmosphere immediately, you will soon die.

In the case of traffic policemen, their work is in situations where they are exposed to carbon monoxide from the exhaust gases, and it is found that the saturation levels of carbon monoxide with hemoglobin could rise to 15 percent. or 20 percent. In other words, if 100 percent. is the possible saturation limit, and the saturation limit where you breathe a lethal amount is between 40 percent. and 50 percent., these people have already breathed in, say, 15 percent. or 20 percent., and at that level you can experience severe headaches, and beyond the 20 percent., say between 20 percent. and 30 percent. saturation, you could even become unconscious.

BY MR. BELYEA:

Q. Have you ever heard of these policemen being tested for their reaction time or co-ordination?

A. That is right. As a matter of fact, the effects of carbon monoxide are recognized as being so serious that during the war there was a limitation on the amount of carbon monoxide which could be present in the air of the cockpit of a



fighting plane, was at a level down as low as .005 percent.

Q. Would you say that accidents are caused on the highways by virtue of drivers having received carbon monoxide from the traffic?

A. Conceivably, because if you have too much carbon monoxide in your blood, you are at the stage where reactions become much slower, and yet you are fully capable of driving.

BY THE CHAIRMAN:

Q. You are then similar to a drunken driver?

A. That is right. You are not capable of reacting to a sudden, emergency situation?

The harmless limit of carbon monoxide, for everyday exposure, if the maximum allowance concentration is 100 parts per million, the limit is .01 percent. For aircraft -- the reason why they set it at one-half of that, was because at higher altitudes, you already have lower oxygen in the blood.

For instance, at 10,000 feet, you only have 87 percent oxygen of what you have at ground level, and, therefore, you need only one-half the permissible level of CO to cause the injurious effects. They arbitrarily maintained the limit at 50 parts per





million.

THE CHAIRMAN: Thank you very much. I think that will conclude the formal part of our meeting.

DOCTOR LOSSING: How would the level of carbon monoxide in the blood of a person who smokes heavily, compare with the non-smokers who are exposed to traffic?

THE WITNESS: The smoker would have relatively less carbon monoxide in the blood than an individual exposed to heavy traffic on a street corner.

BY DOCTOR EVIS (Secretary):

Q. Would you say what percentage of carbon monoxide a smoker would have in his blood, if he is a heavy smoker?

A. He would have from 5 percent. to 7 percent. saturation of carbon monoxide and hemoglobins, if you consider 100 percent. as being complete saturation, whereas a man directing traffic on a street corner could have from 15 percent. to 20 percent. very readily.

DOCTOR EVIS (Secretary): If he was a heavy smoker and driving home to his suburban residence in a three-lane traffic street, he might again have headaches, and so forth, and also headaches the



morning after, which might not be due entirely to alcohol, but due to the terrific amount of smoke in a nightclub or a theatre?

THE WITNESS: Yes, that is right.

---The witness retired.

THE CHAIRMAN: We will adjourn now to meet this evening at eight o'clock, in the School Board Administrative Building.

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---Whereupon, at 5:10 o'clock p.m., the further proceedings of this Committee adjourned until this evening at eight o'clock.

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EVENING SESSION

Ottawa, Ontario,  
Thursday, November 8th, 1956,  
8:00 o'clock, p.m.

- - - -

The further proceedings of this Committee  
reconvened pursuant to adjournment.

Mr. A. H. Cowling, Chairman,  
Presiding.

PRESENT:

Messrs. Morningstar,  
Murdoch,  
Elliott,  
Gordon,  
Thomas (Oshawa),  
Dr. F. A. Evis, Secretary.

APPEARANCES:

Mr. H. A. Belyea,	Air Pollution Control Officer, Metropolitan Toronto.
Mr. G. S. Fraser,	Canadian National Railway.
Mr. F. G. Walton,	Canadian National Railway.
Mr. R. M. MacDonald,	Board of Transport Commissioners.





Mr. A. Lesage,	Board of Transport Commissioners.
Mr. P. K. Ingle,	Board of Transport Commissioners.
Mr. R. Angus,	Board of Transport Commissioners.
Mr. R. F. Coughlan,	Citizen, Ottawa.
Mr. C. Maxwell Taylor,	Corporation of the City of Ottawa.
Mr. A.J.O'Shaughnessy,	Smoke Abatement Officer, Ottawa.
Mrs. Jean Gallagher,	Resident, Ottawa.
Mr. Jerry Mulligan,	Resident, Ottawa.

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THE CHAIRMAN: Gentlemen, I think we will open the meeting, as it is about eight o'clock.

My name is Cowling, and I am the Chairman of this Select Committee of the House. I would like you to meet our membership. First is Mr. William Murdoch, the member of Essex South; Mr. R. E. Elliott, the member for Hamilton East; Mr. Ellis Morningstar, the member for Welland; Mr. Thomas, the member for Oshawa; Mr. George Gordon, the member for Brantford; Mr. Harry Belyea, our technical advisor, Doctor Evis, our Secretary, and medical expert, and our shorthand reporter, who will take down everything



everybody says.

I think we will try to keep this meeting as informal as possible.

The purpose of the Committee, as you know, is that we are charged by the Ontario Legislature to study the matter of air pollution and smoke control, and make certain recommendations at the next regular Session of the House.

We have already submitted an interim report, and our next report will be the final one.

I would like to call upon some of those who are present, and if you would like to say a word, please stand, give your name, and go on from there.

MR. F. G. WALTON (Canadian National Railway):  
I do not quite understand what you want me to say, Mr. Chairman.

THE CHAIRMAN: Have you any complaints, or what did you want to discuss with the Committee? Why are you here tonight?

MR. WALTON: I am the Locomotive Foreman of the Canadian National Railway at Ottawa, and I was instructed to come here tonight, not with the idea in mind of lodging any complaints; in fact, it might be the other way around. I might be the one who is responsible for making black smoke.



THE CHAIRMAN: If you wish to remain as an observer, that is perfectly all right.

MR. WALTON: The reason I came is because I was so instructed. If I am asked any questions, I am perfectly willing to try and answer them, if it is within my power.

G. S. F R A S E R,

Chief Engineer of Power Plant at Union Station,  
Canadian National Railway, Ottawa, appearing before  
the Committee, but not being sworn, testifies as  
follows:

BY THE CHAIRMAN:

Q. Have you anything you wish to say, Mr. Fraser?

A. I was requested to come here as an observer.

Q. You operate the plant here?

A. Yes.

Q. Which railroad?

A. The Canadian National Railway.

THE CHAIRMAN: I am glad to see the railroads  
are well represented here tonight.

---The witness retired.

R. M. M a c D O N A L D,

with the Board of Transport Commissioners, Ottawa,





appearing before the Committee, but not being sworn, testifies as follows:

BY THE CHAIRMAN:

Q. We would be glad to listen to anything you care to say, Mr. MacDonald.

A. I am with the Board of Transport Commissioners. There are four of us here from the Commission. We received your invitation to be present here tonight, and are glad of the opportunity of being here.

You understand what our functions are?

Q. Yes, of course.

THE CHAIRMAN: Thank you very much.

---The witness retired.

R. F. COUGHLAN,

Resident, city of Ottawa, appearing before the Committee, but not being sworn, testifies as follows:

BY THE CHAIRMAN:

Q. What do you wish to say to the Committee, Mr. Coughlan?

A. I am here in the line of just listening to what is taking place. I was sort of interested in seeing what it is all about.

I live in the west end of Ottawa, near the Canadian National roundhouse, and the smoke is very bad,



and is getting worse all the time, in spite of the diesel engines.

Q. Is that the Canadian National or the Canadian Pacific Railway?

A. The Canadian Pacific Railway. I was more or less interested in this. The City Fathers dropped the whole thing like a hot potato in recent years.

The railways promised they would put in what they call a "smoke-nuisance investigator" to see that nothing like that happens. Since he started there -- I think about eighteen months ago -- the situation is about twice as bad.

I am speaking from the point of view of why this roundhouse was ever built there. I was there before the roundhouse was built, and before the Ottawa West Station was built.

The property in the neighbourhood has depreciated, for a good mile or a mile and a half from the roundhouse. That is why I was interested in seeing the Ontario Government had taken the matter up.

Q. You say since the Ottawa City Council appointed the smoke-abatement officer, the condition is worse?

A. Yes. I would like to see your Committee put



a man on there to make a study of it during the daylight hours.

Again, this Ottawa station is near the roundhouse, and they have a crew to service the western trains. All the trains going east and west have to come through there.

There was a crew up there of about twelve or fifteen men working. They were comparative strangers, working night and day, and they certainly made it worse. When they get the blowers on, it is bad for about two miles. It is not just in my area; it goes back over the residential area.

Q. Have you noticed an increase in the number of diesel locomotives being used there?

A. I have not checked it, but they tell me about half the western trains have diesels on them now.

Q. Has that not made a difference?

A. No. Maybe they have to go through the same process. Perhaps the Canadian National Railway can tell us about that.

If you go out early in the morning, you will find soot just like rain all over the grass, and your property.

They claim the railways have some special privileges from back about 99 years, and can do what





they like.

Q. We do know the railways are operating under an Order dated 1908, so it is not really 99 years.

A. Apparently they cannot do anything about them.

A few years back -- I guess about eighteen or twenty years ago -- the city at that time went after the Canadian Pacific Railway very strongly, and they had them at a point where they were going to take them into court, and the Canadian Pacific Railway wrote a nice letter from headquarters in Montreal -- I have seen the letter -- warning the city that if they pressed the charge, they would move the roundhouse out of the city, so the Council backed down.

Then nothing was done until they appointed this so-called "smoke-abatement officer" about seven years ago, and they dropped him about two years ago, and everything went flat. There is no abatement officer in the city at all.

As far as I know, there is none, even down here around the buildings. They took them off, and put them onto something else.

THE CHAIRMAN: Do the members of the Committee care to ask this witness any questions?



BY MR. THOMAS (Oshawa):

Q. I did not quite hear all of your statement, Mr. Coughlan. Have you no smoke-control officer in the city of Ottawa?

A. As far as I know, there is none. They have what they call a "smoke-nuisance committee" in Council. I think that went on for a period, I would say, roughly, of five years, but they got to the point where they abolished it altogether.

Q. Some of the complaints you are making here this evening, you have made to Council?

A. We have complained.

Q. How far did you get with them?

A. We could not get anywhere.

BY MR. BELYEA:

Q. Have you made a complaint directly to the Company?

A. No, except by telephone.

Q. What kind of an answer did you receive?

A. That they would look into it.

Q. But they have done nothing?

A. No. They have what they call the "city complaint bureau" here, and they take your name, and say they will look after it, and that is the last you hear of it.



BY MR. THOMAS (Oshawa):

Q. Did not the Council think, as your representatives here, that they should complain to this Company about the nuisance?

A. No, they did not do that. Apparently the Canadian Pacific Railway has carte blanche to do as they like.

I was born in Ottawa, and have lived in that same area ever since. I grew up in that district. I was there before they came into it. The city made a mistake in allowing them to build it out there.

The Ottawa West Station out there has a long platform where the people get off the Toronto pool trains, and the Pembroke local, or something like that. However, very few get off. It is more for the switch engines over the Chaudiere. They have to leave Ottawa and go to Hull, and then come back into the Union Station.

Apparently they want to service their engines there.

BY THE CHAIRMAN:

Q. You might be interested in knowing that at pretty well every place we have gone in Ontario, that has been the major complaint -- about the trains.





This Committee will certainly take into serious consideration what you have said, and what so many others have said.

A. I think it is criminal. The point is, in all these things -- I am not connected as an employee of the Company. I realize with the Canadian Pacific Railway, how, in an area like this, there are generally many who are employees, and that is why there are not too many complaints. Usually a place like this is surrounded by railway people and their families. That has helped the Company a great deal.

I know a number of people who work there, and they cannot open their mouths. They are working for the Canadian Pacific Railway.

That is the way the thing goes on.

Q. How long have you been carrying on this personal fight?

A. I have never really made a fight of it, but I have often been tempted to.

Q. For how long?

A. It has been going on for years; it is getting worse.

Q. How many years? Twenty?

A. Twenty or twenty-five.

Q. And it is getting worse?



A. It is getting worse in the last five years with all these diesels and everything. The situation has not improved.

I am told by men who are railroad engineers, who have come to me, and who are supposed to have watched it, that it is caused through carelessness by the employees in the roundhouse. They go in at the last minute -- I do not know the system they use -- but they have blowers, and they get the thing working, and the result is there is this black smoke there, and you cannot see the Parliament Buildings, only a mile and a half away.

They tell me it is more the type of employees they have.

BY MR. BELYEA:

Q. Is it at any particular time of the day, or is it day and night?

A. I think it is pretty well all the time. I do not know of any days in the week which are worse than others. It would be interesting to have actual photographs of the thing. I have been tempted to go and take photographs of it. I thought of going out in the morning and sweeping up this soot. I bet you would get a dustpan full of ash and soot, maybe about 5 x 7.



I have often been tempted to send it down to the Canadian Pacific Railway in Montreal, to let them see it. They have no regard for the people. They just do not care.

BY MR. ELLIOTT:

Q. Have you ever taken your complaints directly to the railroad?

A. Yes.

Q. You never complained directly to them?

A. No.

Q. Do you not think that might be a good idea?

DOCTOR EVIS (Secretary): He said he did it by telephone.

THE WITNESS: I telephoned them and talked to them.

BY MR. ELLIOTT:

Q. You have telephoned them?

A. Yes, but they did not do anything.

Q. Did they give any indication of when there will be complete dieselization?

A. No, only what I read in the newspapers.

BY MR. MURDOCH:

Q. What happens in your neighbourhood if somebody paints a house, and then there are these emissions, as you say, which are very bad? What





happens then?

A. You just "get the works", and that is it. I painted my place last spring, and before it was dry, it was covered with soot.

BY MR. BELYEA:

Q. Aside from the dirt and soot falling, does it bother you in regard to your health, or the health of the people around you?

A. You cannot open the windows.

Q. You have to keep the windows closed all the time, do you?

A. Yes.

BY MR. MURDOCH:

Q. The Department of Health has air samplers; it might be interesting to see sometimes what would happen if a sample of the air was taken when it was bad, so you would know exactly what was in the air, and you would have some scientific data to go on.

A. Why should I, as an individual, have to do that?

Q. I appreciate that.

A. They are in awful shape at the House of Commons. You can stand at the House of Commons and see my place.

Q. Other places in Ontario do this type of thing,



and possibly are more active than they are here.

A. It should not be up to an individual citizen to have to do that.

I came down here more or less to see what was being done about it, and see what was happening.

BY THE CHAIRMAN:

Q. There will be something happen. You can depend on that. I think you had better put a bomb under the Council down here, and get them to move a bit.

A. "Charlotte" (Mayor Whitton) is too busy to do anything about it.

Q. What is she busy at now? Even though our Committee makes recommendations which should be adopted by the Provincial government, <sup>and</sup> I think they will be, but they still depend a great deal on the action taken by the local municipal councils.

Did you ever think of running for Council?

A. No, not particularly.

Q. Why do you not try it, and check the whole thing up a bit?

A. Ottawa is a funny place to run for Council. I have seen it grow up.

Q. You sound like the type of individual who would do a good job. I really mean that, too.



Most of our members were members of Councils. I know I served on the municipal Council, and others have throughout the province, and when I hear somebody making an intelligent complaint, it always sort of suggests to me to suggest to the individual that if he has the time and the inclination, to try and get on the Council, and do something about it himself.

I think you would get a great deal of satisfaction out of that; then you do not have to ask other people to do it.

You might think that over before the next election. When is it?

A. Pretty soon now. It is in December.

THE CHAIRMAN: Thank you very much. I want to assure you that this Committee is "on the job", to really take some action in this regard.

THE WITNESS: I think the railroads should be pulled up.

THE CHAIRMAN: I am sure we will be doing something.

THE WITNESS: It might have been different when the area was not thickly populated, but today it is a different story. The area today is a heavily-populated residential district.

My wife was saying this evening that she met





a woman who lives three or four city blocks away from where we are, and she told us the same thing, as what we think about it. She gets the smoke there, and is about four city blocks away.

BY MR. THOMAS (Oshawa):

Q. We have heard the same complaint as you are making tonight against the railroads. I wonder if the railroads would care to make a reply? I think they should be given that opportunity.

MR. MURDOCH: If there are any other complaints about the smoke nuisance, perhaps it would be better to run them off first.

THE CHAIRMAN: Is there anybody else complaining about the railroads here? (No response).

Would any of the railroad representatives care to make a comment on what we have heard? Perhaps some one associated with the Board of Transport Commissioners would like to comment on that. What about you, Mr. MacDonald?

MR. MacDONALD: We have received no recent complaints from any of the residents around Ottawa. We have dealt with somewhat similar complaints from other places in Canada, but this is the first intimation I have had that the Ottawa West situation is as serious as it is. This gentleman (Mr. Coughlan)



should know; he lives out there. I do not happen to live in that area of the city.

We are not here to defend the railways. We are here to listen to complaints, and to pass along any complaints disclosed here this evening, to the Board. We have no authority to make any statement, outside of that.

---The witness retired.

C. MAXWELL TAYLOR,

Building Inspector and Supervising Architect, Ottawa, appearing before the Committee, but not being sworn, deposes:

BY THE CHAIRMAN:

Q. We would be glad to hear what you have to say, Mr. Taylor.

A. I have been instructed to appear before you to submit a brief approved by the Board of Control. I have the Smoke Abatement Officer on my left, Mr. A. J. O'Shaugnessy. The brief is only one page long. Whether you want it read or not, I am not sure.

Q. Will you read it, please?

A. It is addressed to the Ontario Select Committee on Air Pollution and Smoke Control, dated November 7th, 1956, and reads as follows:



" Re: Smoke Control

Dear Sirs:

Under date of Nov. 6, 1956, the Board of Control of the Corporation of the City of Ottawa authorized me to place before your Committee the following brief.

In the year 1947, the City of Ottawa established a Smoke Abatement Committee which was very active and as a result, By-law ~~7/~~ 9797 of the Corporation of the City of Ottawa, copy of which is attached, respecting atmospheric pollution was passed by City Council on May 19, 1947, coming into effect the 2nd day of June, 1947.

The City of Ottawa was one of the first major Canadian cities to become actively engaged in this field and the By-law clearly outlines the duties and responsibilities necessary for maintaining air purity. Marked progress was made through the years 1949, 1950, and 1951, in the Smoke Abatement Branch, which included a Superintendent, Field Engineer and a statistical clerk, and due to their efforts, many of the greatest offenders in air pollution were corrected or minimized.





" On the retirement of the Smoke Abatement Superintendent, Mr. T. E. Warner, in 1952, the Smoke Abatement budget was reduced and the Committee disbanded, and the Field Inspector and statistical clerk were incorporated into the Building Inspection Branch, which has been carrying on these duties.

The City of Ottawa has prohibited the construction of incinerators as an integral part of a structure or an apartment or other building since the year 1939 and this has considerably reduced fly ash and the emission of smoke and other fumes and gases which would emit from such incinerators, whereas all other major cities permit their use.

The Railway Companies have also changed many of their engines to diesel, which has also contributed to air purity.

Over the years since 1947, the smoke abatement control has greatly reduced the emission of fumes and other solid products. I am submitting herewith a list, as provided by the Smoke Inspector, of the most troublesome spots from which the City has received complaints, in case the Ontario Select Committee



wishes to examine same."

I might say that I happen to be the Building Inspector and the Supervising Architect for the city.

BY THE CHAIRMAN:

Q. Would you give us a list of those with whom you have had trouble, for the benefit of the Committee?

A. Yes, Mr. Chairman. They are:

"GOVERNMENT PLANTS:

- (1) Central Heating Plant, Wellington & Cliff Sts.
- (2) Bureau of Mines, Lydia & Booth Sts.
- (3) Connaught Building, Sussex St.

RAILWAY INSTALLATIONS:

- (1) Stationary Power Plant, Bayview Road.
- (2) Union Station, Central Heating, Besserer St.
- (3) C.N.R. Shops Stationary Plant, Deep Cut.

INDUSTRIAL AND COMMERCIAL:

- (1) Parkers Cleaners & Dyers, Sparks St.
- (2) Producers Dairy, Ltd., Kent & Cooper Sts.
- (3) Morrison-Lamothe Bakery, Echo Drive.
- (4) W. C. Edwards, Somerset St. West."

Q. One you mentioned there is the Government heating plant?

A. Yes, that is the large heating plant which heats the Parliament Buildings, and many of the buildings



owned and controlled by the government.

That is the submission, Mr. Chairman and gentlemen, from the City of Ottawa.

Q. The smoke abatement is under your control?

A. Yes. I am responsible to the Director of Planning and Works of the Board of Control.

Q. Would you care to comment on some of the things our friend (Mr. Coughlan) just mentioned? I was not aware of the fact that you had a set-up here.

A. Our smoke inspector investigates all complaints. Of course, we have not received very many during the summer time. We received one today, but they are all channeled through the Smoke-Abatement Department, and we are receiving perhaps three a week from the beginning of the heating season.

We had one in the uptown area where one of the higher office buildings was changing its heating plant, and they made a decided improvement. That is one of the large office buildings, about ten storeys, and when they start up the boilers, sometimes there are complaints about the combustion not being efficient.

Q. How many complaints would you get in the middle of winter -- say, in February?

A. Sometimes in the winter time, we receive at least 150 during the winter.





BY MR. MURDOCH:

Q. What action do you take as a result of these complaints?

A. We had one recently for which there was a very easy solution. Some of them have been slightly different. Some of them are bona fide, and some are based on these iron firemen.

Q. Does your inspector spend his whole time inspecting, or just attending to complaints?

A. When he is not busy with smoke abatement,,he looks after complaints.

Q. He spends most of his time going around Ottawa inspecting?

A. Yes. At one time, when Mr. O'Shaugnessy was with the Branch -- in 1947 -- the Branch was very active, but we have very few industries in Ottawa, and, as I pointed out in my breif, we have no incinerators. They were of great benefit to many cities.

We only have the city hospital, but we have a good garbage collection system here, and we are eliminating a great deal of fly ash and things they might have in other cities.

BY THE CHAIRMAN:

Q. You are aware of the present exemptions under the existing law?



A. Yes.

Q. What is your personal view of eliminating all exemptions under the law?

A. Well, we have the city of Ottawa by-law here. It is numbered 9797. I think Mr. O'Shaugnessy would agree that it would be pretty hard to prosecute anybody and secure a conviction. They are not great enough offenders to actually cause a nuisance, to such an extent that they could be prosecuted.

Q. Have you noticed, since the railroads are putting into effect their dieselization programme, that you have had fewer complaints about the trains?

A. Oh, yes. Complaints regarding the trains have certainly been very much less.

Q. Would you care to give a rough figure of what the difference might be? Where you received ten in a month, would it be two or three, or better-roughly?

A. I cannot answer that without referring to statistics.

The brief was prepared, and we went into different factors. I am not in a position to speak on behalf of the city, although I am instructed to appear here and present the brief.

If you have any questions you would like



answered, we shall be pleased to give you any statistical information, following this meeting.

Q. That is fine. The reason I asked that question was because it contradicts our friend (Mr. Coughlan) who says that in his community, despite the advance of dieselization, the pollution is getting worse.

You just make the opposite statement, that your complaints in the Ottawa district are decreasing as the dieselization programme becomes effective?

What about you, Mr. O'Shaugnessy? Would you like to comment on this railroad situation?

THE WITNESS: I might table a copy of our By-law No. 9797, which the Committee may find of interest.

THE CHAIRMAN: We will be very glad to have it.

---Whereupon the By-law No. 9797, of the City of Ottawa, was admitted into the record, and is, in words and figures, as follows, to wit:

"

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#### BY-LAW NUMBER 9797

A By-law of the Corporation of the City of Ottawa respecting atmospheric pollution.

The Council of the Corporation of the City of Ottawa enacts as follows:

1. In this By-law,





(a) 'Chart' shall mean the Ringelmann Smoke

Chart published by the United States Bureau of Mines when the same is used in accordance with the instructions published by the said Bureau.

(b) 'Commissioner of Works' shall mean the

Commissioner of Works of the Corporation.

(c) 'Dust separating equipment' shall mean

an apparatus or device for separating dust, soot, or fly-ash from the gas medium in which it is carried.

(d) 'Fly-ash' shall mean gas-borne particles

of carbonaceous material larger than 1 micron in mean diameter.

(e) 'Fuel burning equipment' shall mean a

furnace, incinerator, boiler, chimney, flue, stack or any other structure, apparatus or device used in burning fuel or any combustible material or in connection therewith.

(f) 'Superintendent' shall mean the Smoke

Superintendent of the Corporation.

2. Except as provided in Section 3 no owner, occupant, manager or agent of any property or any person employed thereby or under contract thereto shall--



(a) at any time cause or permit to be emitted into the atmosphere from any fuel burning equipment on the property smoke the shade or appearance of which is darker than shade No. 2 shown on the Chart;

(b) cause or permit to be emitted into the atmosphere from any fuel burning equipment on the property smoke the shade or appearance of which is as dark as but not darker than shade No. 2 shown on the Chart for more than four minutes in any period of thirty minutes.

3. Smoke, the shade or appearance of which is as dark as but not darker than shade No. 3, shown on the Chart, may be emitted to the atmosphere from fuel burning equipment for not more than three minutes in any period of fifteen minutes when a new fire is being built or when a breakdown of the fuel burning equipment occurs and the offensive emission is not reasonably preventable.

4. Except as provided in Section 5, no owner, occupant, manager or agent of any property or any person employed thereby or under contract thereto shall cause or permit to be emitted into the atmosphere from any fuel burning equipment



or dust separating equipment on the property dust, soot or fly-ash in excess of eight-five one hundredths (.85) pounds per thousand pounds of gases. Such calculation shall be made on the basis of fifty percent. excess air for gaseous products of combustion.

5. Dust, soot or fly-ash not exceeding fifteen percent. of the total dust, soot or fly-ash entering any dust separating equipment may be emitted to the atmosphere.

6. For the purpose of determining the amount of dust, soot or fly-ash emitted to the atmosphere, the standard provided by the Test Code of the American Society of Mechanical Engineers for dust separating equipment, as revised and amended from time to time, shall be used.

7. The Superintendent shall be qualified by technical training or experience in the theory and practice of the construction and operation of fuel burning equipment and dust separating, equipment, particularly in relation to the control of smoke, dust, soot and fly-ash.

8. The Superintendent shall have no financial interest in any fuel or the supply, servicing or





repair of any fuel burning equipment or dust separating equipment.

9. The Superintendent shall be directly responsible to the Commissioner of Works.

10. The Superintendent shall not be charged with any duties other than those which pertain to his office as Superintendent.

11. It shall be the duty of the Superintendent:

- (a) to make daily observations of the pollution of the atmosphere in the City of Ottawa from products of combustion and to make all such steps as by this or any other By-law of the Corporation or by any Act he may be empowered to take to prevent or lessen the same;
- (b) to make periodic inspections of fuel burning equipment and dust separating equipment installed in the City of Ottawa and the efficiency with which the same operates;
- (c) to investigate all complaints respecting atmospheric pollution from products of combustion and inefficiency of operation of fuel burning equipment and dust separating equipment;
- (d) to examine all plans submitted to the



Building Inspector of the Corporation  
for the construction of new buildings  
or for the alteration of existing buildings  
in order to ensure that in all cases where  
fuel burning equipment or dust separating  
equipment is to be installed, altered or  
repaired an application is made for a  
permit under this By-law;

- (e) to examine all applications for permits  
for the installation, alteration or repair  
of fuel burning equipment and dust separating  
equipment and all plans and specifications  
submitted therewith;
- (f) to inspect all fuel burning equipment  
and dust separating equipment for the  
installation, alteration or repair of which  
a permit has been issued in order to determine  
whether or not the same should be permitted  
to operate;
- (g) to keep a record of all applications,  
permits, certificates, plans, specifications  
and other records required in the administra-  
tion of this By-law;
- (h) to publish and disseminate information  
on the subject of the abatement of atmospheric



pollution from products of combustion;

(i) to enforce all the provisions of this By-law and where necessary to lay informations for breach of the same;

(j) generally to carry out all such duties respecting the prevention or abatement of atmospheric pollution from products of combustion as may from time to time be prescribed by the Commissioner of Works.

12. The Superintendent and all persons appointed to assist him in carrying out his duties under this by-law may enter at all reasonable times upon any property in order to ascertain whether or not the By-law is being complied with.

13. The Superintendent may require the owner, occupant, manager or agent of any property to make such tests of or alterations in any fuel burning equipment or dust separating equipment thereon or the manner of operating the same as may, in his opinion, be necessary to prevent or lessen the emission to the atmosphere of smoke, dust, fly-ash, soot, fumes or other solid or gaseous product of combustion, and in the event of failure on the part of the owner,





occupant, manager, or agent to make such tests or alterations as the Superintendent may specify, the same may be made by the Superintendent at the expense of the owner or occupant and the Corporation may recover such expense by action in any court of competent jurisdiction or in like manner as municipal taxes.

14. (1) No person shall install, alter or repair any fuel burning equipment or dust separating equipment, and no owner, occupant manager or agent of any property shall permit any fuel burning equipment or dust separating equipment thereon to be installed, altered or repaired, unless a permit shall first have been obtained from the Commissioner of Works.

(2) No permit shall be required for routine maintenance and minor repairs which do not effect the extent to which products of combustion will be admitted to the atmosphere from fuel burning equipment or dust separating equipment.

(15. (1) Applications for permits shall be made to the Commissioner of Works upon forms supplied by him and shall be accompanied by



plans and specifications in duplicate showing in detail all work proposed to be undertaken.

(2) Where a permit under By-law Number 8752 of the Corporation (the Building By-law) is also required, the application for the permit under this by-law shall accompany the application for the permit under By-law Number 8267.

16. No owner, occupant, manager or agent of any property shall use or permit to be used any fuel burning equipment or dust separating equipment thereon for the installation, alteration or repair of which a permit has been issued unless and until the Superintendent has inspected the same and the Commissioner of Works has issued a certificate authorizing the use, and each day of operation of the equipment without such certificate shall constitute a separate offence.

17. (1) A board, named the Board of Smoke Appeals (hereinafter referred to as the Board) consisting of seven members, appointed by the Council on the date of the final passing of this By-law and the first meeting of the Council in each year thereafter, is established for the purpose of hearing and determining



appeals from decisions and orders of the Superintendent.

(2) One member of the Board shall be a member of the Council.

(3) At least one member of the Board shall be a member in good standing of the Professional Engineers Association of Ontario, at least one other member of the Board shall be a member in good standing at the Institute of Power Engineers of Ontario, and at least one other member of the Board shall be a holder of a First Class Engineer's Certificate under The Operating Engineer's Act.

(4) The members of the Board shall hold office for the year in which they are appointed and until a new Board is appointed.

(5) Upon the death or resignation of any member of the Board his successor shall be appointed by the Council at the next following meeting thereof for the balance of his term of office.

(6) Five members of the Board shall constitute a quorum.

(7) The Board shall at the first meeting in each year appoint one of its members to be chairman.





18. The Commissioner of Works shall provide all secretarial and clerical facilities required by the Board.

19. The Board may meet and adjourn from time to time, at pleasure, or may be summoned to meet at any time by the chairman of the Board.

20. The Board shall hear and determine all appeals from orders and decisions of the Superintendent brought in accordance with the provisions of Section 21, and the Board shall have power to confirm, vary or reverse any such order or decision.

21. (1) Any person complaining of an order or decision of the Superintendent may personally or by his agent give notice in writing to the Commissioner of Works that he intends to appeal such order or decision and shall give a name and address where notice can be served upon him.

(2) The notice of appeal shall be given to the Commissioner of Works within ten days after the day upon which the order or decision complained of is made.

22. The Commissioner of Works shall forthwith after receipt of a notice of appeal forward



the same to the chairman of the Board and the chairman shall appoint a day within fifteen days after receipt of the notice for the hearing of the appeal.

23. (1) The Board shall communicate its decisions to the Commissioner of Works, who shall forthwith notify the appellant and the Superintendent thereof.

(2) Unless a further appeal is taken to the Ontario Municipal Board, the decision of the Board shall be final and binding upon the Corporation, the Commissioner of Works, the Superintendent and the appellant.

24. The Issuance of a permit to install, alter or repair, or the issuance of a certificate permitting the operation of any fuel burning equipment or dust separating shall not relieve the holder thereof from prosecution for pollution of the atmosphere contrary to the provisions of this By-law.

25. Every person who contravenes any of the provisions of this by-law, any decision or order of the Superintendent made under the authority of this by-law, any decision or resolution of the Board of Smoke Appeals or



any decision of the Ontario Municipal Board on appeal from the Board of Smoke Appeals shall, upon conviction therefor, be liable to a fine not exceeding (exclusive of costs) \$50.00 for the first offence, \$100.00 for the second offence and \$200.00 for the third and each subsequent offence.

26. This By-law shall come into effect on the date of the final passing thereof with the exception of Sections 14, 15, 16 and 25, which shall not come into effect until the 2nd day of June, 1947.

GIVEN under the Corporate Seal of the City of Ottawa this 19th day of May, 1947.

(Sgd.) N. R. Ogilvie,	(Sgd.) E. A. Pourque,
City Clerk.	Acting Mayor."

THE CHAIRMAN: Thank you very much, Mr. Taylor.

---The witness retired.

A. J. O' S H A U G N E S S Y,

Smoke Abatement Officer, City of Ottawa, appearing before the Committee, but not being sworn, deposes and says:





BY THE CHAIRMAN:

Q. What would you like to say, by way of comment, Mr. O'Shaugnessy?

A. The Canadian Pacific Railway -- and I will speak specifically of them -- inaugurated a system of re-lighting. It was very effective under demonstration.

However, their compressor plant did not have the capacity to make the steam effective throughout the whole roundhouse, and while the system itself was effective to a group of officials who actually saw the demonstration, it did not prove very effective.

Furthermore, the increase in velocity gave rise to a fly-ash condition, much along the lines about which the gentleman spoke (Mr. Coughlan).

Q. You would not get that fly-ash condition from diesels?

A. No. I am speaking primarily of locomotives.

The diesel programme in the last four years has not changed in the city of Ottawa, that is, from the diesels which are actually used for the operations in and out of this city;

The only difference which could be said -- and, incidentally, I looked into this from this point of view, before this meeting -- and it was found out



that the main passenger trains are dieselized, but their freight and local runs are still operated with steam.

There has been no change in the number of shunters operating in the yards. I think it was in 1951 they started operating and they are still operating.

Q. Have you ever suggested to the railroads that perhaps it might be a good move to call in the coal-burners, and put more diesels on in Ottawa?

A. No. I might say the city of Ottawa is quite specific, and it can truthfully be said there has been no smoke-abatement branch for the last four years -- no active branch or programme.

BY MR. THOMAS (Oshawa):

Q. That is one of the things I noticed particularly.

A. It was stated the air pollution committee had done a good job from 1947 to 1952, and then the air pollution **officer** resigned and the budget was cut.

MR. TAYLOR: He did not resign. He was pensioned, and his superannuation came into effect.

BY MR. THOMAS (Oshawa):

Q. Then the budget was cut?

A. Yes.

Q. You would know if they were doing a good job, and I think with the natural growth of the city, there



would be greater need for that branch.

The gentleman (Mr. Coughlan) has now been there for four or five years, and nothing, -- or very little -- has been done.

The only conclusion to which I can come is that Council obviously is not aware of this problem, or at least is shunting it by.

BY THE CHAIRMAN:

Q. I notice you made some comments about the government heating plant. We know that probably some of the worst offenders throughout our province include the Federal government, the provincial government, and the municipal governments.

I think it is up to the various levels of government to see the light in this matter of cleaning up the air.

Have you had fair co-operation from the Federal government here in that connection, would you say?

MR. TAYLOR: I would answer that by saying "Yes". They have been very co-operative with the original smoke abatement committee. There was certainly a marked improvement, to such an extent that I can say, unofficially, that the city achieved such improved results, that they transferred Mr. O'Shaugnessy and the clerical staff into Building Inspection, particularly





in the summer months.

BY THE CHAIRMAN:

Q. Would you say that in 1952, Ottawa pretty well cleaned up the whole situation, and "that was it"?

A. I would not say "they cleaned it up".

Q. But it improved to such an extent that you did not feel you needed a committee?

A. That was a matter for Council.

Q. Of course, you can speak freely here tonight.

A. We only carry out instructions from the Board of Control and the City Council. There was such a marked improvement, and everything was under control. Ottawa is not an industrial city. I have worked in Hamilton and Toronto and some American cities, where they have real problems.

The railways co-operated back in 1947, up to 1952, with their diesels.

Since then, very few diesels have been placed in the Ottawa area. There has been very little change.

BY MR. BELYEA:

Q. I was interested in your remark about incinerators, Mr. Taylor. You have a by-law which prohibits them in apartments?



MR. TAYLOR: Yes, since 1939. The architects from Toronto and Montreal were appalled when designing some of the large buildings in Ottawa, when they found that no incinerators were allowed.

MR. BELYEA: How many suites would there be in an apartment building?

MR. TAYLOR: Some of them have one hundred suites.

MR. BELYEA: Even when they are prohibited, they can dispose of their garbage all right?

MR. TAYLOR: Yes. There were some places in 1939, which had incinerators, and still have them, because the by-law was not made retroactive.

MR. BELYEA: How frequently is the garbage picked up?

MR. TAYLOR: Once a week in the winter time, and twice in the summer months.

MR. BELYEA: Do you find that 100-suite apartments can store and keep that garbage for a week?

MR. TAYLOR: They have garbage units and we have an active Health Department, and have had no trouble whatsoever.

MR. BELYEA: They have storage places for it?



MR. TAYLOR: Yes. They have a problem, but we have had no complaints.

MR. THOMAS (Oshawa): How do you get rid of your garbage? By incineration?

MR. TAYLOR: In Ottawa, it is just fill. We use a bulldozer and fill.

THE CHAIRMAN: Thank you very much. Are there any other questions, gentlemen?

BY THE CHAIRMAN:

Q. Have you anything else you wanted to say, Mr. O'Shaugnessy?

A. I would be glad to answer any questions.

---The witness retired.

THE CHAIRMAN: We would like to hear from you, Mrs. Gallagher. I am sorry we did not call upon you before we heard the gentlemen, but it just happened that way.

M R S. J E A N G A L L A G H E R,

Resident, City of Ottawa, appearing before the Committee, but not being sworn, deposes and says:

BY THE CHAIRMAN:

Q. We would be very glad to hear anything you have to say, Mrs. Gallagher.





A. I live in the Temple Court apartments. I just moved in there recently, and the smoke from the apartment is terrible, coming in through the windows. It is a large apartment house at the corner of Waverley Street.

BY MR. THOMAS (Oshawa):

Q. How long has it been going on?

A. Quite a long time.

MR. TAYLOR: We will be pleased to look into that tomorrow morning.

BY THE CHAIRMAN:

Q. You are lodging your complaint with the right people at the right time, and I think if you speak to them after the meeting, you will get some consideration.

Have you complained before?

A. Yes. My brother called, and we called the Fire Department. I showed a neighbour my curtains which were new, but I did not let on about complaining, and she said the firemen were up at her place, as there was a complaint about the smoke, and something had to be done about it.

BY THE CHAIRMAN:

Q. Do you think the situation in Ottawa is pretty good, other than that?



A. Oh, I do not know. Sometimes it is pretty bad.

BY MR. GORDON:

Q. They told you there was nothing could be done about it, that you still had to "take it"?

A. Yes.

BY MR. BELYEA:

Q. It was the Fire Department which told you that?

A. Yes.

Q. Nobody from the city department?

A. No.

BY MR. THOMAS (Oshawa):

Q. Is it continuous?

A. At certain times, and you can even smell it when the windows are open. It was a friend of mine from whom I rented the apartment, because she is in the hospital now. The black on the walls is terrible.

BY MR. GORDON:

Q. What does it smell like, from coal or wood, or from garbage?

A. My brother thought maybe it was garbage.

THE CHAIRMAN: Thank you very much, Mrs. Gallagher. I am sure the Smoke Inspector will look into that for you.

MR. TAYLOR: Yes, we will look into that tomorrow.



---The witness retired.

THE CHAIRMAN: That seems to cover the situation, ladies and gentlemen. It was very nice of you to come down and make these presentations, and others being here as observers. You have all been most helpful to the Committee when it is time for us to make our final decisions.

We have had an opportunity of looking over the province of Ontario from one end to the other. We have visited such places as Sarnia, Windsor, London, Toronto, Niagara Falls, Hamilton, Welland, Sudbury, and now Ottawa, and we will be going on to Cornwall, Brockville and Peterborough.

So you can see we have a pretty good idea of the air-pollution problem in the province.

MR. O'SHAUGNESSY: In the places you have investigated, how many have a smoke abatement branch which is active?

THE CHAIRMAN: I can name some: Windsor, Sarnia, Hamilton, Toronto and London. I would say that is about it. Those have active programmes.

MR. O'SHAUGNESSY: Of what would a branch consist, in the way of personnel?

THE CHAIRMAN: Perhaps Mr. Murdoch could





comment on the Windsor situation.

MR. MURDOCH: I cannot, no, except to say that Mr. Boyle is the Smoke Abatement Officer.

THE CHAIRMAN: That is a full-time job?

MR. MURDOCH: Yes, it is a full-time job. I think he has some assistants.

I know, a matter of a few weeks ago, through Mr. Boyle, one of the steamship owners was brought into court and actually fined for excessive smoke emissions from a steamship while it was tied up in Windsor.

There again, the steamships, when they are fined, will complain that the trains along the river create more smoke than they do, and it just points out the magnitude of the problem.

They are very active in Windsor. When we visited there, we were taken to the roundhouse and different places, and Mr. Boyle did seem very familiar with the entire situation in the city of Windsor.

THE CHAIRMAN: Mr. Elliott, can you tell us about Hamilton? What is the situation there?

MR. ELLIOTT: I would say in Hamilton, which is a great industrial city, we have a full-time officer who does nothing else but look after all complaints, dust-collecting, and so on.



We have a problem from time to time, but through co-operation, so far, there has not been anybody brought into court.

There are some problems about which they want new legislation, to go a little further with certain industries, and I think it will be the job of this Committee, when we report to the Legislature, to recommend an Act to give smoke abatement officers more control and more power.

MR. O'SHAUGNESSY: You get a great deal of flexibility in the individual by-laws?

MR. ELLIOTT: They want an amendment to the Municipal Act, to provide the smoke abatement officer with more power.

MR. O'SHAUGNESSY: The city of Ottawa's by-law is very well a model, but actually it is so restricted in its limitations, that it would need to be strengthened, in a few ways, to be practicable.

MR. ELLIOTT: I think our Secretary has on file the recommendations from the smoke abatement officer to the Board of Health, and if you wish, I think he could furnish you with a copy of it.

MR. O'SHAUGNESSY: You will see there is no allowance for what might be termed "necessary factory inspection".



MR. ELLIOTT: Doctor Evis could supply you with a copy of the amendment which is being suggested to the Municipal Act.

DOCTOR EVIS (Secretary): Yes, I can give you a copy, Mr. O'Shaugnessy.

THE CHAIRMAN: You say, there are many sections of the by-law which could be strengthened in Ottawa?

MR. O'SHAUGNESSY: The by-law, from an enforcement point of view, is quite impractical, as you can see if you were to analyze the actual limitations or restrictions of the by-law. It makes no allowance for factory operations at all.

MR. GORDON: Under present legislation, any municipality is restricted as to what it can do in the way of enforcement. Certain industries do not come under the by-law; they are exempt.

MR. O'SHAUGNESSY: Any recommendation would have to take into account, the existing planned economy. That has to be considered, in any recommendation.

MR. THOMAS (Oshawa): That is quite true, Mr. Chairman. The only way you can overcome that is by co-operation between your air-pollution officer and industry itself.





We have found there has been a great deal of co-operation on both sides, at the different places we have visited.

The restrictions would have to be approached in a spirit of co-operation to try and get them to realize their responsibilities. Industry has responsibilities, too.

MR. ELLIOTT: I would like to tell these gentlemen ( indicating ) with all due respect to the railroads, that the Canadian Pacific is completely dieselized in its yards in Hamilton, and a majority of the passenger trains are dieselized on the T. H. & B. so our problem is pretty well over, due to dieselization.

The Canadian National Railway is only half dieselized, but it is cleaning up our problem terrifically, and we have not the railway problem we had a year ago, in Hamilton.

THE CHAIRMAN: I think you can rest assured, Mr. O'Shaugnessy, that this Committee will not recommend any legislation which is not practical, or is not based on good, common sense, and which is not a realistic approach to the whole thing.

There is no point in passing a law which cannot be enforced, is there?

MR. O'SHAUGNESSY: The general feeling is



there is no realization of the method of enforcing it.

THE CHAIRMAN: One of the big things in this whole matter of air pollution is public education and public awareness of the seriousness of the problem in certain areas.

Are there any further questions, gentlemen?

MR. THOMAS (Oshawa): Before we adjourn, Mr. Chairman, I think a complaint has been made against the railway company, and I think it is only fair that some of the representatives of the railway should have the opportunity of replying, to give us the side of the railways. I think it is only fair they should be given an opportunity to speak, anyway.

THE CHAIRMAN: As a matter of fact, we did make that suggestion before, Mr. Thomas, and I think you heard what the railroad representatives had to say.

J E R R Y     M U L L I G A N,

a resident of the city of Ottawa, appearing before the Committee, but not being sworn, deposes and says:

BY THE CHAIRMAN:

Q.        We would be very glad to hear what you have to say, Mr. Mulligan.

A.        May I ask a question?



Q. Certainly.

A. How does the situation compare between Ottawa and a highly-industrialized community like Welland, for instance? What comparison have you found there?

A. I think we can say that the situation is a little more difficult in Welland than it is here, because Welland, as you have mentioned, is a highly-industrialized area. They have a large metallurgical plant with open-hearth burners, so it does shoot a great deal of smoke pollution into the air.

Then there is the large Page-Hersey plant, which is doing a good job in endeavouring to clean up its pollution problem.

There was one organization which just seemed to go merrily along, and blow out black smoke all day, and paid no attention to what the other industries were doing.

We asked the people why this particular outfit was not co-operating, and they said that coal is cheap, and they just let it ride along.

We put a group like that into what we call the "bad-mannered class", which we consider the same as your having a poor neighbour next door, who thinks he can just put his garbage over onto your property.





I think the Committee will agree we have very few of them in the province, and those people should be dealt with accordingly.

Generally speaking, Ottawa is cleaner, and the air is cleaner, here, than it is in Welland. Let us put it that way.

We have the member for Welland as a member of our Committee. I think Mr. Morningstar will agree with that.

MR. MORNINGSTAR: That is right, Mr. Chairman.

MR. GORDON: The industry of which you speak, Mr. Chairman, is exempt under our present legislation, such as foundries, brickyards, and so on.

MR. MORNINGSTAR: I think it would be nice to say that some of the industries we have~~visited~~ have put in collectors, and they collect by-products which they are selling, and are enabled to pay a dividend on their collectors.

I think that is a very good investment.

THE CHAIRMAN: Yes. We generally found that where industry is putting in proper equipment, the by-products they derive from that equipment, more than offsets the capital cost.

THE WITNESS: You were in Welland; how do you handle that? Do you make recommendations to the



various Councils?

THE CHAIRMAN: We have not carried it that far. The Committee is in the course of studying and following our studies, there will be a report made to the Legislature, recommending legislation.

THE WITNESS: I realize that, but there must have been some good effect in these municipalities.

THE CHAIRMAN: Not necessarily, no.

MR. GORDON: We held a public meeting, and the hall was crowded to the doors, and the people analyzed what was happening in that area. I believe some members of Council did attend that meeting, and we heard what the people thought about it.

THE CHAIRMAN: We were not able to do anything on the spot, other than to hear complaints, and give the people the assurance that we were studying the situation, and would make recommendations. We were not there to advise them what to do. That is what you meant?

THE WITNESS: Yes.

MR. GORDON: You have not that situation in Ottawa. In every railroad centre we have visited, the complaints have been by way of criticism of the railroads. In fact, so much so, that in Windsor, an engineer appeared before the Committee on behalf



of the firemen, and he told us that the firemen requested him to appear before us, and give the firemen's side of this situation.

Each time there was a complaint in of a certain engine, the fireman received five demerit marks, the next time ten demerit marks, and so on. He came before the Committee to show us that the firemen could not do anything about it, because they had old obsolete-patterned engines, and all they had was a little pipe which cost about \$1.50, which did not do anything to correct the smoke going into the air. With dieselization, of course, that will go.

We know about one in Toronto; it is just about as bad as anything can be, and they are not doing anything about it.

THE CHAIRMAN: A large Canadian Pacific roundhouse is in my riding, so I know about what you are speaking.

Has anybody anything else to say, before we conclude this hearing? ( No response).

If not, we thank you very much for attending, and you have all been most helpful to the Committee.

This meeting is adjourned.

---The witness retired.

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---Whereupon at 9:02 o'clock p.m., the further proceedings of this Committee adjourned until Friday, November 9th, 1956, at 1:00 o'clock, p.m.







P R O C E E D I N G S

of the

SELECT COMMITTEE APPOINTED BY THE ONTARIO LEGISLATURE  
TO ENQUIRE INTO CERTAIN MATTERS AND LEGISLATION  
REGARDING SMOKE CONTROL AND AIR POLLUTION IN ONTARIO.

Mr. A. H. Cowling, Chairman.

Dr. F. A. Evis, Secretary.

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VOLUME XXXVIII

Friday, November 9th, 1956,

OTTAWA, Ontario.

- - - -

R. C. Sturgeon,  
Official Reporter,  
Parliament Buildings,  
Toronto, Ontario.



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T H I R T Y - E I G H T H   D A Y

Ottawa, Ontario,  
Friday, November 9th, 1956,  
1:00 o'clock, p.m.

- - - -

The further proceedings of this Committee  
reconvened pursuant to adjournment.

Mr. A. H. Cowling, Chairman,  
Presiding.

PRESENT:

Messrs. Elliott,  
Murdoch,  
Morningstar,  
Gordon,  
Thomas (Oshawa),  
Dr. F. A. Evis, Secretary.

APPEARANCES:

Mr. H. A. Belyea,	Air Pollution Control Officer, Metropolitan Toronto.
Dr. Morris Katz,	Consultant, Atmospheric Pollution Services, Occupational Health Division, Dept. National Health and Welfare.
Dr. E. A. Watkinson,	Chief, Occupational Health Division, Dept. National Health and Welfare.





---The following proceedings were held in Suite 144, Chateau Laurier, Ottawa, as follows:

THE CHAIRMAN: Gentlemen, the meeting will come to order.

DOCTOR EVIS (Secretary): Before you commence with your special interests, I think the Committee would appreciate having your personal experience and reaction in London, England, about the fog situation over there.

MR. ELLIOTT: Is not the Doctor an expert on atomic energy?

DOCTOR EVIS (Secretary): We have had no direct evidence from England, as yet.

D R. E. A. W A T K I N S O N,

Principal Medical Advisor in Environmental Health and Special Projects, Department of National Health and Welfare, Ottawa, appearing before the Committee, but not being sworn, deposes and says:

BY DOCTOR EVIS (Secretary):

Q. Would you just give us briefly your personal experiences and reactions in London?

A. I am a little reticent about saying anything,



because, at best, it is only a subjective reaction.

I always think back to the statement by Sir Hugh Beaver, when he was making his first report to the First International Congress in New York city, when there were present other air-pollution reports, following the 1952 episode. I think he was sincere about it. He was speaking largely to the United States people, and he said he really did not know what we were talking about. He said, "You have no air pollution here; you have not the situation we have in the United Kingdom, and you just have not any". He had not seen any at that time.

BY MR. ELLIOTT:

Q. In England?

A. He had come over from the United Kingdom. He was the head of a subcommittee which was set up. I think he came from Leeds, and he had a much closer experience with conditions in the United Kingdom than any of us are ever likely to have, and is, I think, a competent authority. My time there was comparatively short, and I spent a great deal of my time in Scotland.

On my recent trip, about mid-October, I did have, for the first time -- perhaps I am more sensitive to the subject than I was before -- but I really thought I was experiencing a situation which was comparable



to those about which we speak and think, when we speak of America, and the environment in which we would prefer not to bring up our children, or spend very much of our own lifetimes.

I had only been there on this occasion at the most for ten days. We had a very real sunny day, and I went up to Cambridge, on the east coast, east of London, and it certainly is not an industrial area.

Apart from that, I was introduced, for the first time, to what I think smog represents. As I was saying to Doctor Evis at luncheon, on a couple of occasions I did wake up in the middle of the night, feeling I had actually experienced some physical discomfort in breathing, as a result of the atmospheric conditions.

BY THE CHAIRMAN:

Q. This was in October?

A. Yes. Their fogs do not normally start until November, or even December. Yet, when I ran up to Leeds, I ran into a dense fog. A friend of mine had to go to Manchester, and we could only see about a yard in front of the car with the headlights on.

I think this was a very typical type of





situation they do not normally meet at this time of the year, but it existed there for several days, and it was quite uncomfortable, and the people there hesitated to see the fall coming with its recurrence of normal fogs.

But we did not have the dense fog they had in 1942, when, day after day, they were not able to get around the city at all.

MR. ELLIOTT: I have been there, and I think their pollution is eight or ten times greater than ours.

THE WITNESS: Yes.

BY MR. ELLIOTT:

Q. On the other hand, how is their death rate, as compared to ours? How does their life expectancy compare with this side of the water? That is something I cannot find out. I did find out that many of the housing projects have more old people than we have here.

DOCTOR EVIS (Secretary): Perhaps the younger ones look older. I think our life expectancy is higher in Canada than in Great Britain.

MR. ELLIOTT: Have you any proof of that?

DOCTOR EVIS (Secretary): We can get the figures for you.



MR. ELLIOTT: I stepped out of the Lord Nelson Hotel, and it was almost as black as that desk (indicating).

DOCTOR EVIS (Secretary): The best place to live in the world, from the standpoint of length of life, is New Zealand.

MR. ELLIOTT: I think London is one of the dirtiest cities of all. They have to sand blast their buildings about every five years.

THE WITNESS: I did not think they had, except when they were painting up for the Coronation.

I think we have to be very careful about trying to relate our life expectancy with any one factor, because undoubtedly the factors of nutrition, housing, and generally the whole social and economic picture, have a bearing, and unless you can assess these factors individually, or as a group --

MR. ELLIOTT: Maybe it is regarding the length of life.

MR. MURDOCH: I think it has been found that New Zealand differs from others, including the British population, because Britain has an older population, for the reason that a large number of the younger people have migrated to Canada, and New Zealand, where it is easy for them to carry on.



BY THE CHAIRMAN:

Q. You were speaking about Sir Hugh Beaver, and said when he spoke of Canada, he did not think we have a problem here at all?

A. That was two years ago, when they had the First International Conference on pollution. He did not come to Canada on that occasion, but he was saying this for a United States audience, as he saw United States conditions at that time.

He had not seen everything -- I think he had come from California -- from Los Angeles -- and at that point, he had, in his own opinion,<sup>seen</sup> nothing that was like the air pollution problem which would rank with anything they had in their own country.

BY MR. THOMAS (Oshawa):

Q. He was telling them the things they wanted to hear?

A. No, I think we was quite frank. He had not presented any report. His report was, of course, of interest, but I think he just felt that anything he had seen up to that time, did not compare, in terms of degree.

THE CHAIRMAN: They have been working on the problem for 350 years or more.

DOCTOR KATZ: I think he was referring to





visible pollution.

THE WITNESS: Yes.

DOCTOR KATZ: I could knock holes in his argument in no time at all. If you are going after invisible pollution, there is not a single area in Britain, from the standpoint, let us say, of sulphur dioxide, which releases anywhere near as much sulphur dioxide from one house, as any one of a half a dozen houses do on this continent .

What he was referring to -- and he is right there -- that from the visibility point of view, there is pollution -- smoke and dust -- which you can actually see, and certainly it is mainly in relation to Britain. I do not think we would have the patience to tolerate the condition in which they have lived for hundreds of years in Britain.

THE CHAIRMAN: Have we on the record your official capacity, Doctor Watkinson?

THE WITNESS: Yes, I gave it to your reporter.

BY DOCTOR EVIS (Secretary):

Q. Could we get a comment on your specific field of interest?

A. That depends. Within the Department of National Health and Welfare, I have a certain



responsibility related to environmental health generally, and in addition, certain special projects which include the ionizing radiation, and its effects on health.

Environmental health, of course, covers a field of occupational health, air pollution surveys, public health engineering, and certain fields of our radiation work.

Some of the special projects are the rehabilitating, disability allowances, and certain other things.

Also, I have certain commitments from the International Commission on Radiology Protection, and also the International Red Cross.

So you can pick and choose as to about what you would like me to speak.

Q. Could you give us something about the possibility, or probability, of the dangers from experimental atomic explosions, from the use of atomic energy in industry, for example, in the power plant the Queen just opened, and the one which will soon be opened in Ontario?

What is the danger when those gases are released, of polluting the air with radioactive material? What would be the possible results on human beings?



A. I cannot say anything, of course, about the U.K. plan. They only recently opened their first plant, and have another nine or ten planned.

We have been in the picture in regard to the proposed site of the Ontario plant; in fact, we have spent a great number of months with their engineers, and with their atomic-energy experts, particularly with the Ontario Department of Health, with a view to obtaining complete re-assurances regarding every stage of the planning, building, and the ultimate operation, in order to ensure there are no hazards.

We are bending over backward, because we feel that in the eyes of the public, this is the first reactor in this country, and, therefore, we should be as realistic as we possibly can, and should go at it in such a way as to "play it safe" completely.

That has been our philosophy, and has been accepted by various groups concerned with the planning and building, and from our point of view -- you see, that in our Department of National Health, we act as medical health advisors, to the Atomic Energy Control Board, which has the responsibility, under the Atomic Energy Act.

Our concern is, first of all, to give guidance, particularly in regard to the interest and





responsibilities of the provincial Department of Health, in this newly-developing field.

We are endeavouring to see that the provinces have every opportunity for stating their cases. We visit the site, ask questions about it, advise on plant operations, handle various disposal of matters of contamination of the ground, or the cesspools in inter-provincial air pollution.

In fact, step by step, we have gone over these various aspects, and in respect to the air pollution problem specifically, Doctor Katz, of our own Department, has given leadership in the study and investigation of plans and proposals for operation, to ensure 99.9 percent. -- or beyond -- in fact, the absolute maximum.

There is no room here for experimentation. Ultimately, when more experience has been gained from the handling and operation of the first reactor, no doubt it will be feasible to take shortcuts, but no one to my knowledge as yet is prepared to propose anything except complete control and as far as it is humanly possible, to provide for every conceivable accident. In fact, we have been trying to estimate the worst possible thing which could happen and working back from that, and making sure



that we could cope, in the field of public health, with the worst possible thing, and have assured ourselves on that point, and then to work back to ensure the maintenance of a highly-qualified, efficient staff to operate and maintain, and have a complete protection organization.

That is the kind of thinking we are doing at this stage.

BY THE CHAIRMAN:

Q. What is the worst possible thing which could happen, Doctor?

A. Perhaps I am not qualified to tell you in that regard. We hear everyone say, "Could it go out of control?", but there are various types of reactors now in the United States, where they have been doing some experimental work.

They built one or two of different types, and there have been various article prepared for publication in the current literature in regard to siting the operations of the reactors, and one of the proposals is to have the operation completely enclosed, so that if the thing were to get out of control, we have taken a number of precautions whereby, should there be a failure, that would stop something else, and that, in turn, would stop something



else, and the whole thing would stop. That is the kind of plan they are working on now.

They are trying to foresee the unforeseeable, and the concept of complete enclosure is only accepted by some people to offset the reactor cell, in case anything should go. We have profited by the fullest information in this regard.

We understand it cannot go up in the sense that it is an explosion against a solid base, which would go in one direction. Whether the terrific heat would be such that it would melt all the elements, which would dissipate them downward, and they would settle into a sort of saucer, is the question. The designs call for a solid type of arrangement, so that everything would be contained and isolated.

That is a very general and a very simple type of explanation, but we have had our own engineers working closely with the engineers involved in the designing.

It is not one of our concerns, although the plans called for, as I say, the worst conceivable type of accident which is possible, and yet we cannot secure a positive reply from any engineer saying "This cannot happen; you cannot plan that way".

Despite that, we are going ahead to provide





as many safeguards as possible. That is the kind of thinking going on at the moment.

Q. Do you know Mr. Harris, of the Atomic Energy Commission of New York State?

A. I do not know him.

Q. It was very interesting to learn from him that is exactly the type of thing he mentioned is going on in the United States.

A. Yes.

Q. To the letter?

A. Yes. We have been corresponding with him, and recently, when I was in New York, I set up an arrangement whereby our people can now visit their reactor people, that is, their people responsible for the site.

Our own plan has been based on the United Kingdom to date, as some of the best work has been done in the United Kingdom.

Q. Everybody admits that.

A. Yes. But, at the same time, we are not ignorant of the fact that there is a tremendous amount of good work and experience available from the United States, and we will have a closer tie-in because of the geographical lines.

This is the sort of thing concerning which



we will have to pool our information.

Q. Will you make any estimate of when we may expect atomic power for the Hydro-Electric power system?

A. No, I prefer not to. That is not my own subject. I would only be repeating what you have seen in the newspapers.

DOCTOR KATZ: May I make a remark to amplify your remarks, Doctor Watkinson?

THE WITNESS: I wish you would.

DOCTOR KATZ: As Doctor Watkinson has related, the way a failure could conceivably occur in a reactor would be that after the reactor core had melted and settled into this saucer, or some receptacle, coincidental with that there would be a release of radioactive material from, let us say, a high-pressure vessel, or from the top of the reactor, into the building or area in which the reactor had been housed.

It would then be necessary to clear, within a certain time, the air inside this building, and this air would have to be swept out, and in that way, in clearing the air from this building, the radioactive material would have to be discharged into the atmosphere, and in that way, could conceivably



contaminate the outside air.

As Doctor Watkinson has indicated, in the planning, provision has been made to take care of this radioactive material which will be swept out of the building or enclosure, in order that the people could then take steps to clear the reactor debris, and proceed to salvage what was left.

So the problem of air pollution in a reactor is an intermittent one, in that normally there should be no air pollution, with everything under proper control -- none whatsoever, but only at such time when there was failure of the reactor.

BY DOCTOR EVIS (Secretary):

Q. I guess they are getting away from using heavy water as ballast, and if you had a reactor with heavy water, and it became contaminated, it would tend to contaminate the system?

A. I know that might be possible in the pressure-system type of operation, but not with heavy water. It would not perform that fast. At some point you would have to have heated water.

Q. Would the thing build up and fuse, and so on --

A. Except you have several totally enclosed systems, which are not in contact with one another.





If you were to contaminate your heavy water, it would not necessarily contaminate the next system.

DOCTOR KATZ: The system of water under pressure?

THE WITNESS: Yes, and each one is removed and isolated by itself. Then we have a complete safety factor. You cannot get fusion. If one part was to go, it would not contaminate another part. It would stay right there.

BY DOCTOR EVIS (Secretary):

Q. The new reactor has about 27 safety features, and about 27 things would have to fail in an area, before you had a catastrophe?

A. Yes, and all simultaneously.

DOCTOR KATZ: The various designs of reactors include a system whereby you use water under pressure, that is, through hot exhausts, where you heat water under pressure, and create steam which in turn is used to drive the turbines, which give you the electricity.

Or you could have a metal. In some of the reactors in the United States, they plan on using electrometal like sodium under high pressure to serve as a medium to transfer the energy.

In other cases, they are going on to what



might be, in the future, the most efficient type of reactor, that is, circulating a highly-radioactive solution. There the possibility of controlling is tremendous because instead of getting your solids from a pile, which consist of uranium in solid metal, or in the form of a powder, here you are actually circulating a radium salt, and you can control it so accurately that the possibilities of its becoming uncontrollable are infinitesimal, and I think that will probably be the reactor of the future, because then the heat you liberate will be concentrated where you want it, and all you do is to keep on circulating the radioactive salt in solution.

There are tremendous new developments in this field, and they are changing rapidly.

The first reactor will be built according to conventional design, and will be modelled a great deal after the British type of reactor.

BY DOCTOR EVIS (Secretary):

Q. The Committee has received briefs asking that atomic energy be outlawed, and that type of thing, and they complain about the danger of fall-out from experimental explosions.

Would you comment on the radioactive air pollution, as a result of experiments which are going



on in the world?

A. Are you speaking about the nuclear bomb test, or the tests had from industrial development?

THE CHAIRMAN: Both.

THE WITNESS: Let us take the second one first, in regard to industrial development.

We have been re-assured in the health field, right from the beginning, in regard to nuclear energy, because it is one of the things where we are proceeding with caution. It has been worked out in terms of caution. Now, one of the safest places in which to work is in an atomic energy installation. The medical checks, the follow-ups, the constant research and laboratory examination and environment is such that it is one of the safest places for a workman to work in today.

In this country, I think all the industrial use of atomic energy is so closely supervised by the engineers and the health people, and the production people, that I do not think we need be concerned, if we continue this close supervision which exists.

In regard to the isotopes which are released by research to industrial uses, are all proven, and proven on the basis that people are competent to use them, and that they have adequate facilities, and their





handling procedures are safe, so I think we can dismiss that, for the present at least, as being well in hand, and is likely to be further developed.

That has not happened in any other field of endeavour of that magnitude, and it is something we can, I think, be happy about.

THE CHAIRMAN: You might be interested to note something I do not think even the Committee members know, that my uncle was the first Canadian death through radiation.

THE WITNESS: As a radiologist?

THE CHAIRMAN: Yes.

THE WITNESS: Is that so?

THE CHAIRMAN: Yes.

THE WITNESS: As a pioneer in the field of radiology?

THE CHAIRMAN: Yes. In the early days, he had more to do with measuring the radium at the Eldorado smelting place at Port Hope, and afterwards he went to McKim, and came back to Toronto, and died as a result of radium.

DOCTOR EVIS (Secretary): Did he die of leukemia?

THE CHAIRMAN: No, it was in the chest.

MR. MORNINGSTAR: Cancer?



THE CHAIRMAN: No; the effects of radium.

THE WITNESS: Perhaps it was leukemia.

MR. ELLIOTT: I believe they blast the ore out of the ground, the same as gold, silver and nickel.

THE WITNESS: They tried it out.

DOCTOR EVIS (Secretary): They avoid blasting, if possible.

BY MR. ELLIOTT:

Q. In the refining process, do they grind the rock up, and take the uranium out -- in the refining process?

A. Yes.

Q. And is that at the top of each mine that is running in this country?

A. To my knowledge -- as far as the ground-operated companies are concerned, I am not so sure.

DOCTOR KATZ: Roughly, I think --

THE WITNESS: Do you know the Beaver Lodge picture now?

DOCTOR KATZ: I think roughly it is this; it is a producing mine. They go so far as to concentrate the ore with sulphuric acid, and then they ship that to Eldorado and refine it at Port Hope. There is no further refining beyond that. In other



words, they are not allowed to make uranium oxide.

MR. ELLIOTT: It is refined from the mine? Everything goes to the Eldorado mine and smelted in Port Hope, with additional purifications?

DOCTOR KATZ: I believe that is right.

MR. ELLIOTT: None of it is refined at an individual mine?

DOCTOR KATZ: No, except to use sulphuric acid in the concentration. The ore which is finally ground is given a further treatment with sulphuric acid.

MR. ELLIOTT: It is ground at the top of the mine?

DOCTOR KATZ: Yes, and the concentrate is shipped to the Eldorado mine and refined at Port Hope, for the final extraction of uranium.

BY MR. ELLIOTT:

Q. Is there any danger in transit?

A. No, not as concentrate; not of itself.

Q. I believe it is all shipped by rail, is it not, in flat cars or tank cars?

A. The concentrate is shipped in container bags which could be piled on a flat car.

Q. You do not consider any specific danger in the shipping of it at all?





A           No; in the actual handling of the ore, or even in the mine, we are not concerned about radio-activity. What we are concerned with is radium itself as a systemic toxic poison, the product of radon, which settles out as dust particles which may be inhaled by miners or underground people generally.

Q.           Would there not be a certain amount shipped to hospitals?

DOCTOR KATZ: Doctor Watkinson is an authority on that.

THE WITNESS: To hospitals, it is shipped in isotope form. It has been through the reactor itself, and then it has high levels of radioactivity, and the lead container is so designed -- there are specific regulations relating to this by the Board of Transport Commissioners, and also for shipping overseas. There are regulations which govern the containers which have to meet certain specifications, and certain types of labelling, and they have to be so built that at the present time, if fire occurs on board ship, which melts the lead container, the radiation would be controlled.

Q.           Is there not supervision dealing with it in transit?

A.           Yes. In transit, that is, carried by road



transport, in the event of an accident, and there is a loss obtained, there are people -- competent people -- such as physicists, with equipment, who are prepared to go to the scene of an accident.

For instance, a truck turns over and there is exposure; they set off the area, to avoid any accruing radiation exposure.

BY THE CHAIRMAN:

Q. What was the name of that No. 9 material which was mentioned?

DOCTOR EVIS (Secretary): Strontium 90.

BY THE CHAIRMAN:

Q. Would you care to comment on that?

A. We have, in our Department, a programme for measuring the radioactive strontium 90. As it affects public health, it is one of the radioactive elements we are testing, and we are examining and receiving samples on a monthly basis of biological material right across this country, and we are measuring the radioactive strontiums in food stuffs, in order that we may have, for all time, an understanding of what are the existing levels, and whether or not it may be possible by building up this matter, to co-relate that with biological and other research information, relating to levels which



are safe.

We might assume -- we do not have any precise figure at this time -- that there may be a level which has not been set at which it would be perfectly safe.

The fundamental work is going ahead at the present time, and while we have several levels -- there is an existing level which provides quite a factor of safety -- we are being extremely conservative in this country, as are the United Kingdom people as a whole, and we are trying, on the whole, to find a level beyond which we would not want to go, and we are endeavouring to make that level very, very low.

Because we do not have our clinical information and fundamental research information in most countries concerning the radiological problem, we are making the level extremely low, and playing it completely safe, but as yet we have no figures to publish, but we are prepared to follow it through, and make the necessary recommendations to the hon. Minister of National Health, if we detect levels we consider unsafe.

That is our special programme for the moment. We have others; one relating to genetic studies, and





one on the sematic effects, and it is tied in with a complete radioactive programme in this country, to provide the maximum safety for the public, because we feel the public has no protection, apart from the information we can make available to them, to safeguard them.

You can set up, through central control, the appropriate levels --

DOCTOR EVIS (Secretary): Before we finish to catch the train, would you say that, at the present time, <sup>from</sup> the atomic bomb experimentation, that the public is quite safe from bone cancer, through the strontium 90 getting in to their bones?

THE WITNESS: If we had the answer to that, there would be no need for the scientific committee the government of the United States has set up. They have three years to bring down the report of their research, and it is not due until July, 1958. Then what we do with it, will, of course, be up to us.

In the meantime, however, we perhaps should not be unduly concerned regarding the effects genetically, because the rate of exposure is only a fraction of the normal exposure from cosmic radiation, and the radiation from very minor radium in our bodies, which is a very small fraction of the internal radiation.



The radioactive strontiums are different. As yet, there is no conclusive data about what will be the potential effects on man, but certainly it would appear -- there is some fundamental information which is needed yet -- but, generally, the authorities seem to be prepared to take the time to do this necessary work, knowing that the protection work is going on in many countries of the world, but they state there will be a delay, but they should have that evidence in time, in order to make the necessary recommendations to their appropriate local authorities.

We have to admit that a great deal of fundamental data is lacking, but just at this time, from the past testing -- and we can only operate from --

BY THE CHAIRMAN:

Q. What you know?

A. Yes, from what we know to date. However, the picture might change next year, for all we know.

But, faced with that, we are not unduly concerned. We have a proper respect for, and a proper appreciation of potential hazards associated with this new element in the environment, but, at the same time, on a subject like this, you cannot speak alone from a feeling of emotion, nor we cannot speak from a moral point of view; we need to keep a feeling



of scientific integrity and scientific objectivity to meet this question, because it is one of the greatest mankind has to meet.

Q. You are referring now to the strontium 90?

A. Yes. They are talking about the role of 137. Quite a bit of information has to be obtained yet, but we feel there is time to do the preparatory work, certainly from what has happened to date, so we are not unduly concerned.

BY DOCTOR EVIS (Secretary):

Q. In the meantime, you think this Committee could safely disregard alarming the press against working with radioactive material?

A. Unless someone can come forward. We will be glad to receive all the information you can provide in regard to the measurement level.

We probably have as much in our Division, because we have as much information about fall-out and radio strontium metals as anyone. We are following it keenly; we are exchanging information with the United Kingdom and the United States, and we are represented on the scientific committee, and all information coming from the world centres comes to us and has to be co-related, and we will need all that, to permit us to take a different view.





DOCTOR EVIS (Secretary): I think the press is thinking more from an emotional standpoint.

THE WITNESS: The papers have been filled with some exaggerated reports, but, as I said at luncheon, in a situation like this, you can get such different points of views from recognized scientific groups.

It may be when it is handed over, in the transfer of information, the emphasis has been changed, and thus appears in a rather exaggerated form.

We cannot afford to exaggerate this thing. We have to stick very close to the ground, and test it only on fundamental information.

THE CHAIRMAN: Doctor Watkinson, this has been a very well-spent period of time. I personally feel that the problem of radiation is certainly being well handled by our authorities in Ottawa, and I will make that statement in several speeches I have lined up between now and the end of the year. I am impressed, and I am sure the members of the Committee must be.

We had an opportunity of talking with some of the people in New York, and you have just confirmed everything they have said, and you have added something



to it. In other words, the Canadian situation is well in advance of any of them.

THE WITNESS: I think we compare well with any of them.

THE CHAIRMAN: This is good information for the Committee to have, and I would like to express our thanks to you for coming here today, and also to Doctor Katz.

I think the Committee will confirm what I have done here. I took the liberty of asking Doctor Katz if, when we are considering our final report, we could call upon him, and ask him to perhaps come to Toronto and spend a little time with us in finalizing our report, and our proposed recommendations we will make to the Legislature.

It just seemed to me with the help we have had from so many others at all levels of government, if Doctor Katz, who is recognized by everybody as the outstanding air pollution authority in Canada, would assist us in finalizing our recommendations, it would be a big help.

He has kindly consented to come to Toronto at our convenience.

MR. MURDOCH: Did you receive a copy of our interim report, Doctor Katz?



DOCTOR KATZ: Oh yes, several copies.

THE WITNESS: Our whole endeavour in the Department of National Health is to provide assistance where assistance appears to be needed, and to supplement the efforts of the provinces, since our objectives are all the same, and we are all keeping our eyes on the same ball.

THE CHAIRMAN: Thank you very, very much.

---The witness retired.

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---Whereupon at 2:45 o'clock p.m., the further proceedings of this Committee adjourned to November 13th, 1956, to reconvene in the city of Peterborough, Ontario.

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ONTARIO

P R O C E E D I N G S

of the

SELECT COMMITTEE APPOINTED BY THE ONTARIO LEGISLATURE  
TO ENQUIRE INTO CERTAIN MATTERS AND LEGISLATION  
REGARDING SMOKE CONTROL AND AIR POLLUTION IN ONTARIO.

Mr. A. H. Cowling, Chairman.

Dr. F. A. Evis, Secretary.

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VOLUME XXXIX

Tuesday, November 13th, 1956,

PETERBOROUGH, Ont.

- - - -

R. C. Sturgeon,  
Official Reporter,  
Parliament Buildings,  
Toronto, Ontario.

[illegible]

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Presiding.

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T H I R T Y - N I N T H   D A Y

Peterborough, Ontario,  
Tuesday, November 13th, 1956,  
8:00 o'clock, p.m.

- - - -

The further proceedings of this Committee  
reconvened pursuant to adjournment.

Mr. A. H. Cowling, Chairman,  
Presiding.

PRESENT:

Messrs. Murdoch,  
Elliott,  
Morningstar,  
Gordon,  
Thomas (Oshawa),  
Dr. F. A. Evis, Secretary.

- - - -

APPEARANCES:

Hon. H. H. Scott,	Minister without Portfolio, Ontario Government.
His Worship Mayor Dewart, City of Peterborough.	
Mrs. A. Holt,	Alderman, City of Peterborough.
Mr. F. K. McLearn	C.N.R., Lindsay.



Mr. C. E. Goodenough,	C.N.R., Lindsay.
Mr. W. C. Fallwell,	C.N.R., Lindsay.
Mr. John Hornal,	Peterborough Civic Hospital.
Mr. W. Morrison,	Johnson Motors.
Mr . Graham,	City Council.
Mrs. R. E. Knox,	City Council.
Mr. F. Tuggey,	City Council.
Mr. S. L. Shippam,	Chamber of Commerce.
Mr. John Robson,	Chief Sanitary Inspector, Peterborough.
Mr. Jim Hooper,	Engineering Assistant.
Mr. Jack Comstock,	City Council.
Mr. G. S. Wade,	Nashua (Canada) Ltd.
Mr. W. R. Gaskin,	Canadian General Electric Company.
Mr. L. E. Barry,	Institute of Power Engineers.
M. L. V. Mullen,	A. Wander Limited.
Mr. H. P. Blackmore,	Silverwood's Dairies.
Mr. J. E. Weir,	"
Mr. J. H. Pearse,	C.P.R., Peterborough.
Mr. K. Drain,	271 Prince St.
Mr. W. D. Sorrie,	Peterborough Fire Department.
Mr. B. West,	Peterborough,
Mr. Outram,	"



THE CHAIRMAN: Mr. Minister (hon.Mr.Scott), would you care to say a word at the opening of our meeting?

HON. MR. SCOTT (Minister without Portfolio): Your Worship, our two Madam Aldermen and gentlemen; I have great pleasure in introducing this Committee to the audience.

The Chairman is Mr. A. H. Cowling, member for High Park, Toronto; Mr. Ellis Morningstar, the member for Welland; Mr. R. E. Elliott, the member for Hamilton East; Mr. "Tommy" Thomas, the member for Oshawa; Mr. William Murdoch, the member for Essex South; Mr. George Gordon, the member for Brantford, Dr. F. A. Evis, the Secretary of the Committee, and Mr. Sturgeon, the Hansard reporter.

I do not know that I have anything further to say.

THE CHAIRMAN: I am sure you have, Mr. Minister. You will not get off as lightly as that. That is really not the type of introduction to which the Committee is accustomed, and as one of our Ministers, we would like you to elaborate a little and extend the hand of welcome to the Committee. Let's go. You cannot "get away" with that introduction.





HON. MR. SCOTT: Mr. Chairman, I must apologize. This is a Committee which has travelled widely, at the expense of the province. We have smoke problems in Ontario, which they consider can be remedied by law.

In the meantime, they have been in California and saw the "smog" as it dims the little starlets; they have been in Philadelphia, and are thinking of going to the Ruhr Valley, and then to London, to see what the conditions are.

THE CHAIRMAN: Thank you very much. We are all sorry you came.

Mr. Mayor and friends; this Committee was set up by the Ontario Legislature early in 1955, charged with the duty of looking into the matter of air pollution and smoke control, and coming up with certain recommended legislation to the government.

We just nicely got our feet wet, when along came June, 1955, and an election, and everybody took time off to endeavour to be re-elected -- at least, quite a number did.

In September, 1955, the Committee was re-constituted, and we have been very active since that time.

Air pollution and smoke control is something



in which everybody is interested. This is an all-Party Committee, which is composed of representatives from the Conservative Party, from the Liberal Party, and from the C.C.F.

However, our studies to date would indicate that air pollution is something which transcends Party lines, and is important to every citizen, and I can see that it is important to the people of Peterborough, from the fine representation here tonight.

We would like to hear from any citizen who has a complaint about the situation in Peterborough. We would also like to hear from His Worship the Mayor, and from Alderman Holt, who is in charge, I understand, of the local committee, and from anybody else who can make a contribution which will be helpful on this very important matter.

I think we will be very informal at this meeting; let us keep it on a nice, friendly level, and, to begin, I would like to call upon His Worship Mayor Dewart, to say a word, and then we will be very glad to hear from Alderman Holt.

After hearing from them, the meeting will be thrown open for questioning and general discussion, and I am sure that myself, together with other members of the Committee, will be in a position to give you



some answers to the many questions you undoubtedly will have in connection with this problem.

I understand that so far you have not a smoke abatement officer in Peterborough, nor a smoke by-law, and we will be glad to offer any suggestions to you which might be helpful along that line.

At the last regular Session of the House, we submitted an interim report, and we thought it was a pretty good one, from the comments in the press and other comments which we have received, and we have thus sort of set the stage for the final report which will be submitted at the next regular Session of the House.

I think that is probably enough about what the Committee has done. The hon. Minister has told you where we have been, so perhaps we could hear from His Worship the Mayor at this time.

HIS WORSHIP J. A. DEWART (Mayor, City of Peterborough): Mr. Chairman and gentlemen; I am sure it is a pleasure for me to extend the city's welcome to such a distinguished group, which has come here to consider one of our problems. I do not consider it is one of the major problems, by any means, but it is definitely a problem.





I suppose, in common with all cities, we have some smoke nuisance, and it appears that climatic conditions have very considerably to do with it. Certain parts of the city, of course, are much worse than the others.

We have had complaints from our citizens, and have had a number of meetings with regard to them.

The smoke originates in certain places. We have had talks with certain engineers in charge of the firing of boilers in industry, and we have discussed at considerable length the advisability of having a smoke by-law, but we never could come up with anything which was very tangible, that is to say, which could be satisfactorily enforced.

It is something like trying to "bell the cat"; we never could find an officer who would be the most qualified to administer a smoke by-law. I suppose it is those problems with which your Committee was set up to deal.

We are very glad to have you here to hear what our difficulties are. I do not think I can state them. Alderman Holt is Chairman of the local social committee, and has dealt with it more intimately than I, and I think this evening can deal



with it a little better than I perhaps could myself.

THE CHAIRMAN: You are not alone in the problem of trying to get the right technical advice. It is quite a problem. It is something new. From our recent studies, it does appear difficult to secure the properly-qualified technical advice in regard to what is a great problem, not only to us, but in the States.

We hope the provincial government will be able to assist, shall we say,, the smaller municipalities which, through lack of funds, are not in a position to secure the proper scientific and technical advice they should have in connection with a problem of this kind.

I will ask Alderman Holt to say a few words.

MRS. HOLT (Alderman, City of Peterborough): Your Worship, honourable sirs, and our own hon. Mr. Scott; we were very happy when we learned you were coming this evening to help us with this particular problem, with which we have been dealing in Peterborough for approximately three years, and are really just becoming interested in it, since the beginning of this year.

On May 2nd, we had a meeting. Formerly, we thought of ourselves as having a problem of



atmospheric pollution, but after discussing the matter with a number of industries, and members of institutes, and so on, we came to the conclusion that ours was not a problem of actual atmospheric pollution, but it was more of a problem of smoke pollution.

To the meeting of May 2nd, we invited representatives of three municipal associations, institutions such as hospitals, and so on; our Board of Education, and representatives from our two railways, and they all came more or less to informally discuss the problem we had.

We did come to some conclusions, and it was thought, first of all, we should ask Doctor Speakman to come and discuss the matter with us. He is the Director of the Ontario Research Foundation, and he did come to Peterborough and discuss this problem at an open meeting which, I might add, was very well attended.

At that time, we were rather interested in a mobile unit or station, which we understood we could obtain, but we understand further, that this particular unit at that time was in Sarnia, Then we learned the cost of that particular unit, and that sort of scared us away, because we understood





it would cost approximately \$15,000 a year, and in the discussions, we thought that perhaps Peterborough did not really have such a serious problem, and that we should not go into that particular expense.

We further felt that the round-table discussions might come up with a possible answer.

Possbily a month ago, I guess it would be, I was invited to meet the executives of the Institute of Power Engineers. This invitation was appreciated very much, because it showed to me that the engineers who are actually responsible for firing the furnaces were interested in this particular problem, and they realized that the old story of the smoking chimney, or the belching chimney, was not now good business.

They offered to help us, which I appreciated very much. They took the matter to their own meeting, and they sent me a very nice letter to the effect that they are going to try, through their organization, to educate and train and ask for co-operation of all the engineers in the city, and all of those who are interested in firing furnaces.

Unfortunately, all the people interested in firing furnaces are not members of the Power Engineers, but they have said they will help these



other people, and do what they can for us, so we are hoping here in Peterborough to educate people who do not belong to that engineering group, so that they will co-operate, and be willing to avail themselves of the opportunity of being educated into the proper type of firing furnaces.

One thing we were concerned with was the firing with coal. Maybe you can help us with that particular problem.

As I understand it, to buy anthracite -- I believe that is the correct name -- is rather expensive for our industries, and we would like some advice as to the type of coal to be burned.

We understand that some industries could have a smoke detector, but again that was a rather expensive proposition, and we are being rather cautious in trying any techniques by industry.

I am very proud of the fact that when we have had a complaint, I have gone to the management myself, and have discussed the problem with them, and have received really wonderful co-operation, so we have nothing to complain about in that respect.

Then, of course, we have to have sympathy for the citizens. For instance, possibly two months ago, a man telephoned me saying he would have to have



His home re-painted, because of soot and dirt from a particular industry. This certain industry belched smoke, and it went all over the fresh paint, which was not dry.

You know what we would be up against in that particular case, but one night, not too long ago -- in fact, about ten days ago -- there was a problem of a chimney being too small, and that is another question I should like to ask, whether there are any standard types of chimneys which should be on certain buildings, and which would be of help in getting the smoke up higher than a lower chimney would allow.

I believe I have brought you up to date on what we have done here.

We have two or three questions I think we should like to ask. We would like to know how is the smoke pollution controlled in other cities of a size comparable to Peterborough? We should like to know if they have their own smoke by-laws, and if they do have them, how are they enforced? It is easy to have by-laws, but what is the use of having a by-law, if you cannot enforce it properly?

If smoke is allowed to be emitted six minutes an hour, and somebody telephones in and says





that smoke is belching out of a certain chimney, how can an enforcement officer get out there in a matter of minutes? We would like to know how that is controlled.

I think I have brought you up to date on what we have done, and we are open to further suggestions, and further thought.

THE CHAIRMAN: Before we undertake to answer your questions, I would like to hear from some others in the room.

Are there any citizens present who are complaining about a particular problem in Peterborough?

B.      W E S T,

residing in the city of Peterborough, appearing before the Committee, but not being sworn, deposes and says:

BY THE CHAIRMAN:

Q.      We would be very glad to hear what you have to say, Mr. West.

A.      It is just a case of something similar to what the Alderman had to say about painting.

I am in the southern end of the city, and at my house, I painted it with two coats of paint this late spring, and I had it done in a pink, and right now you do not know but what it is black. I



figure, in that short period of time, there should be something done about it.

I will admit I am right behind one of our industries in the city, the Peterborough Canoe Company. I became so disgusted with it, I was wondering the other night what I was going to do, and when I read in the paper about this meeting, I thought I would come here and see what could be done about it.

Q. Have they been co-operative at all?

A. I have not lived there long enough.

Q. How long have you lived there?

A. Just since the spring. When I moved in, I painted the house. You would think it had not been painted for ten years. It is absolutely black.

BY MR. THOMAS (Oshawa):

Q. Has the situation improved at all since the spring? Have you found any difference? Is it better than it was in the spring, or just the same?

A. The smoke, you mean?

Q. Yes.

A. At times it goes up on my house. I would say it is not better. I can mention my car. I have not a garage for it, and I park it outside, and you can wash it one day, and leave it over night, and



the next morning it is practically black, with little black specks all over it.

BY MR. GORDON:

Q. That sounds as if they were blowing their flues out at night. That is a habit in many places, and in the morning, the soot is on the sidewalks, and even on your cars.

BY MR. THOMAS (Oshawa):

Q. Have you protested to Council as yet?

A. Not yet, but I had it in mind when I read of this meeting, and I thought I would come down and see if anything can be done about it.

I understand now there are no laws governing it. Outside of securing a bit of friendly co-operation from the company, there is not too much we can do about it.

Q. Perhaps your first step might be to consult with Council. You heard Alderman Holt say she had received wonderful co-operation.

A. I might answer that by saying that I came from Toronto, where they have laws against smoke, and I know it is checked periodically by spotters.

BY MR. ELLIOTT:

Q. You just moved into that area; you did not know the conditions when you moved in?





A. No.

Q. You are not a native of this city?

A. No, I am from Toronto.

BY THE CHAIRMAN:

Q. How do you compare the situation here, smoke-wise, with Toronto, Mr. West?

A. In the part where I am now, as compared to where I came from in Toronto, there is no comparison, because I could paint my place there, and it would be good for three years, anyhow.

Q. Where were you in Toronto? What part?

A. In the east end, at Danforth and Coxwell. Then I went to Scarborough, and I had no trouble there at all.

BY MR. MURDOCH:

Q. When you first painted your house, was the damage done right then? Did the ash come onto the fresh paint right away?

A. I did not really notice it until after three or four weeks. Three or four weeks later, I went out one day, and I thought, "That looks funny", so I went around and looked at it, and there was a black coating on it, and it was gradually getting worse and worse. I hate to think what it will look like next spring, with the cold weather coming on.



BY MR. ELLIOTT:

Q. How far are you from the smoke stack?

A. About 300 yards.

BY MR. MURDOCH:

Q. I live on the Detroit River, and we have the steamers going up and down, so I had my house painted a very dark brown.

A. I was thinking of black.

BY MR. ELLIOTT:

Q. What would your house be worth -- approximately?

A. Oh, approximately about \$7,500. to \$8,000.

It was one of those wartime houses which I bought.

Q. Did you buy it, or do you rent it?

A. I am buying it.

BY DOCTOR EVIS (Secretary):

Q. Have you complained to industry?

A. No, I have not, to tell the truth.

BY MR. ELLIOTT:

Q. The prevailing wind is blowing the dirt toward you?

A. I would say yes. The industry is north of me.

Q. You happen to be in a position where the prevailing wind is mostly blowing your way?

A. Yes, and it will be worse when the northwest



winds start to blow, in the winter time.

BY MR. MURDOCH:

Q. Do you find much smoke and dirt inside the window frames?

A. It is not too bad. We have double windows, and have been keeping them both closed, since I first saw it.

Of course, with the warm weather, when the screens are on, I use very fine, aluminum screens, and I think that did help to keep some of it out.

I will have to admit there is a certain amount, but not anything we would have complained about particularly, if it had not been for the outside of the house getting this black all over it.

I know it is from the chimney. There is no doubt about it. I can take a brush when I am cleaning my car, and I can brush off little spots, but it would be quite a chore to wash the outside of the house.

BY MR. MORNINGSTAR:

Q. Are there others who live in that vicinity?

A. Yes. I asked them if they have done anything, and they say, "What is the use?".

BY MR. ELLIOTT:

Q. It concerns the whole neighbourhood; not





just you?

A. Yes, I would say so, in that district, because even over farther from me a couple of blocks, I have heard complaints.

There is another factory over there, the Nashua Paper Company, and I think they throw off quite a bit during the year. You notice it more in the mornings. If you sat out in the daytime, you would not notice it so much during the summer time, but you would notice it some.

It gets on the car. I became "fed up", and I do not wash the car very often now. But it gets on the hood of the car, and it shows marks. I scraped it last week, but I could not get it all off.

MR. THOMAS (Oshawa): The thing which impresses me, Mr. Chairman, is there is no smoke by-law in the city of Peterborough, and no enforcement officer. Perhaps it might be as well to get in touch with the Council and ask them to help you, Mr. West.

THE WITNESS: It apparently is no good, because I cannot go out and paint my house every month. It would require considerable money, especially if I included the labour. I think I have already spent \$50.00 on paint, and I did all the labour myself.



BY MR. ELLIOTT:

Q. Are they building other areas in the same vicinity?

A. Not right close to where I am; quite a bit farther south. New homes have been going up there.

Q. In the path of this same prevailing wind?

A. I would say "Yes" to a certain extent.

Q. Do you think your planning is proper in this town, to allow them to develop new homes in that area?

A. Where these new homes are going up -- I would say it would be a quarter of a mile south of me, where the new homes have been built. I know if I had known of the situation being the way it is, I definitely would not have bought a house there. In fact, I figure on unloading the one I have now, if it keeps up.

I am under a contract to stay for two years, and I am "stuck" there for two years, and will have to put up with it.

If they do not remedy the condition, we will have a shacktown down there; nobody will paint his place, and the district will deteriorate, that is, the values will depreciate.

You saw what happened in downtown Toronto,



and the same thing will happen here, exactly.

THE CHAIRMAN: Alderman Holt, have you had any complaints concerning the Peterbrough Canoe Company?

ALDERMAN HOLT: In the south end? From the Peterborough Canoe? No. But a majority of the complaints do come from the south end. That is our industrial area, but it is also a very nice, refined residential area down there, as well. There are some very nice homes there.

THE WITNESS: But they will not be there very long. If it was a brick house, maybe it would not show so bad. I do not know. But on frame houses, it is not too good.

THE CHAIRMAN: Thank you very much, Mr. West, for bringing this condition to the attention of the Committee, and we hope we will be able to work something out for you.

THE WITNESS: Thank you, very much.

MR. MURDOCH: I would like to point out to Mr. West that we had demonstrated by the people in Pittsburgh, a very good demonstration, which showed to us that a great deal of the smoke coming out of





factory chimneys will be burned if proper combustion methods are used, but some industries, and some individual factories, feel it is cheaper to buy the additional coal and throw it out of the smoke stack, rather than make a change in the plant boilers, to remove the condition.

---The witness retired.

THE CHAIRMAN: Is there anybody here from the Peterborough Canoe Company, or anybody who would like to speak for them? (No response).

If not, are there any other citizens who have complaints, who would like to speak? (No response).

Do these people adhere to the provincial law regarding emissions for six minutes in an hour, or have you anybody to check up on that?

ALDERMAN HOLT: No, we have nobody.

MR. THOMAS (Oshawa): Have you a by-law?

ALDERMAN HOLT: No. We had one drafted, and we tried to iron it out without having actually a smoke by-law, because we felt if we had a smoke by-law, we would have to have a Smoke Board, with a chairman, and we would like to know how to organize it, and how it would be financed.

MR. MURDOCH: You mentioned you have had



co-operation from the Power Engineers?

ALDERMAN HOLT: That is right.

MR. MURDOCH: There would not be any possibility of them forming some kind of an Advisory Board, whereby they could tackle the problem?

ALDERMAN HOLT: Mr. Barry, their President, is here tonight, and I would like it very much, if he would say a few words to you, and tell you how far they have gone with it. They have just well begun their work now, and I am sure you would like to hear from him.

THE CHAIRMAN: We certainly would.

L O U I S   B A R R Y,

President, Institute of Power Engineers,, appearing before the Committee, but not being sworn, deposes and says:

BY THE CHAIRMAN:

Q.        We will be very glad to hear anything you care to say to us, Mr. Barry.

A.        Mr. Chairman, Mr. Mayor, ladies and gentlemen: I did not come here to make any address this evening.

          We had this meeting with Alderman Holt two months ago, but we have not completed any organization



to start handling this on a business-like basis. However, we feel we can assist some of the plants in reducing their smoke problem.

You were just speaking about the Peterborough Canoe Company. I rather suspect they are burning sawdust, and not doing a very good job with it.

We will endeavour to help out wherever we can.

There was one thing about which I was wondering, and that is this; if smoke by-laws are in effect, would you consider it permissive legislation? We perhaps cannot enforce the six minutes in an hour, and, so far, we cannot touch them? Is that true?

Q Yes, that is true.

A. And they can just obey the letter of the law, but not the spirit of it?

Q. That is one thing this Committee is studying.

A. We will co-operate to the best of our ability.

Q. This Committee is not a group of experts. We are laymen in the field, and what we are doing is studying the problem, and we had technical advisors come in with some new suggested legislation, because I feel -- and I think I speak for the other





members of the Committee -- that the legislation under which we have been operating to date is not adequate; it is not tight enough, and is not good enough.

The value of permitting the emission of pollution and smoke six minutes in an hour is questionable. That might be sometimes at just any time at all.

If the proper equipment is installed, and complete combustion takes place, then it is not necessary to emit anything out of the smoke stacks.

Now, it is up to a committee, which perhaps should be a special division, say, of the Ontario Department of Health, to set up an Air Pollution Board at the provincial level to answer some of the questions put to us tonight by Alderman Holt, and to generally supervise the problem.

The Committee may be in a position to advise tonight, although not to make suggestions, because we have not finished our own thinking as yet. However, we will, in the course of our studies .

When we submit our report, I think you will have the answers to some of these problems, but tonight we are not in a position to give you those answers.



There are many municipalities in much the same position as your own, through lack of funds, and through lack of technical assistance. They are not in a position to pass a smoke by-law, and enforce it.

I think I speak for the other members of the Committee, when I say that it is up to a provincial group to supply some of these answers and some of this technical, scientific "know how", and if necessary, to supply some of the finances.

We do not expect that a municipality with 25,000 or 50,000 people, will be in a position to do that. When it comes to cities like Toronto, Hamilton, Ottawa, Windsor, or other of the big places, they can and will do it, but we cannot expect Peterborough, or Brantford or Welland, or some of these other places, to take the same steps.

ALDERMAN HOLT: What do they do in Brantford and Welland? Do they have smoke by-laws there?

MR. GORDON: In Brantford, we are now in the process of forming a committee. Several meetings have been held, and the Committee, as far as I know, is composed of, I think, two members from a group of engineers, one from the unions, one from Brant County real estate unit, and, of course, an



Alderman from the City Council, and a lady from the local Council of Women. They are trying to form a cross-section of the population, on that committee.

The committee will not cost anything. There will be no honoraria for them.

ALDERMAN HOLT: It will just be an advisory committee?

MR. GORDON: It will be a committee where people can bring their complaints, and so on, and the committee will deal with them, to a certain extent.

Just how often they will meet, I do not know, but the City Council will provide them with a meeting place, stationery, and probably a membership in the American Air Pollution Association, and so on, so the cost will not be very great.

Now, they will have to have an inspector, and, as has been said here, it is very difficult to secure a competent man who can go to these firms and advise them what they should do. Many of these firms have antiquated combustion systems, and no matter what they do, they will cause trouble.

I had a chap with a light panel truck drive down to my place one morning. The local textile firm had blown its flues during the night,





and what he said about them was simply terrible.

I picked up a white duster and wiped part of it, and I took it to the smoke pollution committee to show them what is happening. Every day or so, the city clerk receives a call advising him that this thing is happening, and that is done during the night. That is from where most of it comes. The soot and dirt is falling all around, because they do this work during the night.

It seems to me, as far as an inspector is concerned, they have to have a competent inspector. There is no use in hiring a paperhanger. They must have a man who is competent, who can go to this factory, and advise them what they should do, or eliminate what they are doing.

They are not very plentiful. There might be one found amongst engineers who have first-class certificates. But you have to have an inspector who will inspect. We had an inspector for years in Brantford, and all he did was attend to complaints. He was the plumbing inspector, and he only did smoke inspections when complaints were received.

People would complain that something was happening here or there, and he would go and tell them that this complaint had come in, and would ask



them to do what they could about it.

In Brantford, we find our schools are bad offenders, and our public buildings are bad offenders. The Federal post office is an offender, because they are working under conditions where the plant was built nearly fifty years ago, and they are still firing the same old way, and are a nuisance in the centre of the city.

We have thought about using a different kind of coal, but the soft coal industry has a public relations department, and it sends a man up, that is, a man comes up from this soft-coal industry to Brantford, for instance, to try and explain what can be done to eliminate this belching of smoke.

I think if you got in touch with the Brantford committee, you might get some information which would be of value to you.

MR. MORNINGSTAR: I might say, through the Chair, in regard to the city of Welland; it is not too bad, as far as air pollution is concerned.

We have our industries there, but we get smoke from the trains, and from the boats. That is in Welland.

But in Crowland Township, we have a large industry there, and it is quite a bad offender. I



happened to be in the Council there for a number of years, and the ratepayers did petition the Council on many occasions, and the Council took it up with the industry, and asked them if they could do something about eliminating the smoke. That was the Electro Metallurgical Company of Canada.

When they closed in a couple of furnaces, it cut down the smoke nuisance about 90 percent., but the other four furnaces have not been covered.

The Council has been pressing them for a number of years, and now they threaten to move into Quebec province, or somewhere.

Our Committee has found that where the Council presses a firm to try and cut down on the pollution, they threaten to move.

ALDERMAN HOLT: That is a serious problem we have here. We do not want to antagonize our industry. We want to keep them, yet we have to be sympathetic with the citizens.

THE CHAIRMAN: We are all free thinkers on this Committee, and that is a wonderful thing. But I think it has been the opinion of many members of the Committee, that industry does not move from a city to avoid a law.

I think I could mention, perhaps, twenty-five





locations in Canada and the United States, and yet they have not had one industry move, because they had to come within the law.

There are certain "bad-mannered industries", the same as bad-mannered neighbours, who will shoot their garbage and corruption over onto your land. The same can be said of industry.

There are industries operating in our province, and elsewhere, who do not care for the community, and do not care for the individual, and they let the situation go. But, believe me, I think I can say that no industry moves out of an area because they have to abide by a law, because they have to get along with citizens of the community.

If they do move, it is good riddance, because they are not doing your community any good.

MR. GORDON: I do not think any other community would want them.

THE CHAIRMAN: The law will be province wide, so if they move to Peterborough, or some place else in the province, to get away from it, they will find the law will always apply wherever they go in the province.

ALDERMAN HOLT: We feel it should be legislation set up by the province, then we would not have



to come up against one industry moving into another locality.

THE CHAIRMAN: We were in Welland two or three weeks ago, and they did make a real effort to do something about the problem, but we drove down one street and there was a big smoke stack blowing out clouds of the blackest smoke you ever saw.

We drove around for awhile, and in an hour or two, we went back that way, and the stuff was still coming out. The next morning we were in Welland, and the stuff was still coming out.

So we said to the manager of the large industry, "How about it?", and he said, "Coal is cheap", and they will not budge from that position.

Do you think that an industry like that should receive consideration from its community? I do not.

ALDERMAN HOLT: What are good qualifications for a smoke abatement officer?

THE CHAIRMAN: That is a good point. We know that in some of the smaller municipalities, the smoke abatement officer is doing half a dozen different things, and they think he might as well take on the problem of air pollution, as they have nobody to look after it.



I think if you have a good law, and you spend a little money to get a competent man to enforce the law, you will probably succeed. But it cannot be done on a part-time basis. It just would not work.

MR. GORDON: After a few years, I do not think a man like that would be necessary. Perhaps he would clear up the whole thing, and his services would not then be required all the time.

THE CHAIRMAN: As the hon. member for Brantford said (Mr. Gordon), in ninety-nine cases out of a hundred, where industry is spending some money on smoke pollution equipment, they have found that they have saved even more than the cost of the equipment from the complete combustion within the equipment.

MR. MORNINGSTAR: Many industries have put collectors in, and have salvaged what they consider to be by-products, and in a reasonably short time the equipment has paid for itself.

MR. ELLIOTT: May I give a little advice from Hamilton? We have several fairly good-sized industries in that town, as they do in Peterborough, and I am sure this Bureau about which you spoke and which you wish to set up want to do a good job for your city.





There is a competent engineer, I would think, in every organization. Could you not get these engineers together into a committee, in the way of developing a plan to clean up the city? That is what we did in Hamilton. We got engineers from several industries, and they formed a committee, and they worked together and cleaned up their own organizations, and they are doing a wonderful job in discipling themselves.

ALDERMAN HOLT: That is exactly what the Power Institute has recommended, and they have offered to co-operate.

MR. ELLIOTT: I think you will find that they will be more effective than anything else I have seen presented here tonight.

ALDERMAN HOLT: We have small floral shops and warehouses, and dry-cleaning establishments, and our churches and schools.

Our Board of Education is one of our worst offenders, as they are trying to save on their own coal.

MR. ELLIOTT: You will have to make up your minds to spend some money.

ALDERMAN HOLT: We have tried to, but so far have been unsuccessful.



HIS WORSHIP MAYOR DEWART: They are trying to organize something now.

MR. GORDON: We visited the Cadillac Company's plant in Detroit, and we learned they spent \$4000.<sup>three</sup>every monthsto clean their roofs of dust, and they took us up on the roofs and showed us how clean they were.

They put in a dust-collector system which cost about one-half million dollars, and there is no dust or dirt whatever from that plant, and they save \$4000. every three months, and the people in that community will save a good many hundreds of thousands of dollars, because the Company is not blowing its dust and dirt over their buildings, cars, and what have you.

They estimated that in Pittsburgh -- and we have this from Pittsburgh itself -- that since they eliminated the dust and dirt, there is a saving of \$40. per capita per year.

ALDERMAN HOLT: Is the Ringelmann chart effective?

THE CHAIRMAN: Yes.

ALDERMAN HOLT: We have a number of charts, and Mr. Barry was to have some here.

THE CHAIRMAN: It is a standard form for



determining density.

Another thing; we use the term "air pollution and smoke control", but we know it is really smoke control, about which we have to do something first. Generally, air pollution is damaging, particularly to health. We know -- we are not guessing -- that air pollution is detrimental to the health of the people. That is important.

Smoke, fly-ash and dirty soot are harmful to property.

If we can, first of all, do something about the smoke problem, then we can carry on and so something about the other one. Yours here is mainly smoke?

ALDERMAN HOLT: That is right.

THE CHAIRMAN: The general air pollution problem is not too bad as yet?

ALDERMAN HOLT: No.

THE CHAIRMAN: But it will be. In places like Peterborough, and I would think in every other place in the province, you will not have less industry and less smoke, but you will have more industry and more smoke, and now is the time to do something about it.

We feel that today we are encouraging ed





industry to come into Ontario. Our Department of Planning and Development has an office in Chicago, and very recently they opened up an office in New York. We have one in London, England, and one of the reasons for these offices is to bring industry into Ontario.

When they bring industry into our province, it is just good, common sense to take a look at the plans before they build their structures, and advise them on how they can eliminate the smoke and air pollution, before they put up the building, because the cost at that stage of the game is really negligible as compared to the cost of installations when the building is erected. We know there is adequate smoke abatement equipment available for all Ontario, and that includes what you may require in Peterborough. It costs money, but it is available, and it can be done.

In the first place, you must have an awakening of the citizens to the problem. Here tonight we had one citizen in this whole great city of Peterborough who came before the people of Peterborough and complained -- one citizen.

We have been in many other places. We have been in Welland and Brantford, and other places,



and we have heard quite a number of complaints; sometimes it is only one or two, but , for instance, in Welland, we had perhaps a dozen or more.

That shows that people are generally becoming interested in the problem, and they are not going to give too much consideration to these "bad-mannered industries". We just are not going to do it.

I think if enough people in Peterborough get around to that stage of thinking -- and I speak as a former member of the Toronto City Council -- the Peterborough City Council will do something about it. But you have to start with the people. If they are prepared to put up with these dirty plants, and bad things in the town, there is very little can be done about it.

ALDERMAN HOLT: They are complaining.

THE CHAIRMAN: That is the thing.

ALDERMAN HOLT: There is not any problem there. The problem is how to set up this smoke control board. It is your suggestion we go ahead and have a smoke by-law?

THE CHAIRMAN: Yes.

ALDERMAN HOLT: In that case, we would have to provide a smoke enforcement officer?

THE CHAIRMAN: Yes. We have been given to



understand that now there are certain exemptions under the law. We cannot find out why. The exemptions include certain cement plants, brick-making establishments, and certain metallurgical industries which are exempted under the present law, and they can just sit there and blast out smoke, and nobody can do anything.

Our Committee thinks there should be no exemptions at all -- none, but that everybody should be treated the same.

ALDERMAN HOLT: To help the smaller industries --

THE CHAIRMAN: I was going to follow through on that. In passing a smoke abatement by-law, there must be no exceptions under your law; everybody should be treated the same, which would make the enforcement of the law easier than it is today.

ALDERMAN HOLT: How can you handle it, if they are allowed six minutes per hour? If anybody telephones the enforcement officer that such-and-such a plant is belching out smoke, before one of the officers could get there, the six minutes has passed, and how can he prove the density? How can he get to that area in time?

MR. GORDON: He would not be able to get there in time.





ALDERMAN HOLT: How would we enforce that?

MR. GORDON: He would put that in his records, and watch that industry for an hour or two. He would go out and watch them.

DOCTOR EVIS (Secretary): For two or three days.

THE CHAIRMAN: It might take a week or a month, or six months.

MR. GORDON: He could watch them, and wait until he had a few notes on his record.

HON. MR. SCOTT: You might advise that the by-law be deferred until this Committee brings in recommendations to the Legislature, and new legislation is introduced.

THE CHAIRMAN: Not necessarily, Mr. Minister. We would strongly urge the city of Peterborough to get on with the law today, and take it as it is today, and get something going.

If there is a new law passed, all you will need to do is to amend your local law.

I think the important thing is to do something today, and not to put it off. Operate under the law as it is now. It is a very simple thing to change it. You have been studying it for quite some time -- I think you said a year and a half?



ALDERMAN HOLT: Longer than that.

THE CHAIRMAN: I would advise you to get it going. I can assure you that any change which will be made, will be to your advantage, and only tend to strengthen whatever law you pass now.

ALDERMAN HOLT: What is the situation in communities comparable to the size of Peterborough, in the matter of making a smoke by-law?

MR. THOMAS (Oshawa): May I say a word in regard to that? Oshawa is similar in size to Peterborough, and we are in a ridiculous situation, that we have a by-law, but no enforcement officer. They are handling it through the machinery of the Property Committee, and they come in, and ask that the complaint be removed from the agenda. That shows the ridiculous position we are in, in that we have a by-law, with no enforcement. You say that Peterborough has no by-law, and no smoke abatement officer?

I think as soon as the regulations suggested by this Committee to the Legislature, are implemented, it will help to give you something to work on, and, in the meantime, I think the suggestion made tonight is a good one, to get your committee of industrialists formed, and get around to the people, and talk it over with them, and see where you can get.



I would not be certain that it would be wise to introduce a by-law, when you have no enforcement officer.

HIS WORSHIP MAYOR DEWART: That is exactly what Peterborough wants. We had a by-law, but we were unable to get anybody to enforce it, and because we could not get a satisfactory solution, we did not pass the by-law.

ALDERMAN HOLT: We had a Smoke Board set up.

THE CHAIRMAN: You are certainly headed in the right direction.

I could tell you, briefly, what happened in Pittsburgh, and that is a shining example of what can be done, because we have some dirty cities in Ontario. Incidentally, I was interested in hearing one of your citizens say that Peterborough was worse than Toronto.

In Pittsburgh, the situation was so bad in 1946, that industry, the large stores, and the big amusement people, were ready to move out of downtown Pittsburgh. The city was putting out all kinds of dirt and smoke.

So the citizens got together. It did not start with the Council, nor the elected people; the citizens themselves formed their own committee,





comprised of the head of a big, downtown department store, and people of influence, and from that committee came legislation with teeth in it, which was passed, and they found that was a solution to their problem.

The citizens' committee is still active in Pittsburgh. Everybody in Pittsburgh is a smoke abatement inspector; every citizen of Pittsburgh is an inspector, and nobody "gets away" with anything. If I live beside a factory which is shooting out smoke, I telephone the office, and I get some quick action on it. Everybody is an inspector, as I say.

If the people of Toronto or Peterborough or Brantford think it is important enough, they will all be smoke inspectors, and do something about it.

As was mentioned by your Mayor, it is difficult to secure technical advice, and I agree with him on that.

HIS WORSHIP MAYOR DEWART: I would suggest the province might furnish inspectors, then the matter would be quite simple.

THE CHAIRMAN: Who is to say they would not? I would not say it. That might be one of the answers.

HIS WORSHIP MAYOR DEWART: We would have had a by-law, if we could have found a suitable person to adequately enforce it. If you can furnish



one, from that angle, I think perhaps "that is it".

THE CHAIRMAN: I want to assure you that the Committee is very interested in your matter of air pollution and smoke. We have spent a great deal of time and study in connection with the matter, and we have tried to be realistic --

HIS WORSHIP MAYOR DEWART: I can visualize a group of inspectors, thoroughly qualified, coming into Peterborough and making analyses, and then going from factory to factory, and assisting industry to do just what you are suggesting, to get their equipment in shape, so that the smoke will be abated.

THE CHAIRMAN: It might be necessary to go across the province, and assess each industry, and take a look at what they have, and then point out something and advise them what to do.

Nobody has the idea that you will pass a law, and say you are going to put it into force in the morning.

HIS WORSHIP MAYOR DEWART: That would be ridiculous. The legislation is there. We had the by-law drawn, and we used that as a talking point.

But then the point came up, why pass a by-law, if we are not in a position to enforce it? That makes the law ridiculous, does it not?



THE CHAIRMAN: Certainly.

HIS WORSHIP MAYOR DEWART: That is the position we were in.

THE CHAIRMAN: If you could hire an inspector, he could go out with a Ringelmann Chart and go to work today

ALDERMAN HOLT: I have here a draft copy of the by-law, which you might like to look over.

THE CHAIRMAN: Fine, if you wish to leave it with us.

MR. MURDOCH: There was one city -- I forget the name for the moment -- which had fine success in getting going, by getting a smoke abatement officer, who was attached to no department, and the routine was when a citizen complained, there was a person to whom the complaint could be channeled, instead of being passed from one to another.

When a complaint came in, that officer contacted the industry and let them know there was a complaint, and asked them if they could not do something to rectify the situation.

If another complaint came in, the industry was checked, and if they were exceeding the law, then something was done about it.





His Worship has mentioned a group of inspectors coming from the provincial government, but I doubt if I would approve of a group of inspectors going to the various municipalities and inspecting industry in each municipality, and telling them they were breaking the law, because I would get into trouble with the elected officials, the Mayor and Council, of these municipalities, and the first thing they would say would be, "What does the provincial government think it is, by sending these <sup>men</sup> in and scaring industry in our municipality". I think we should never fall into that trap. I think it is a municipal responsibility, but I think that the co-operation of the provincial government with the municipalities will cause them to realize their responsibility in this matter. That is something you can consider, and work toward that objective which you can gain, as the work is proceeded with.

HIS WORSHIP MAYOR DEWART: I think, Mr. Murdoch, you took me too literally. I suggested the inspectors could come in to a municipality, and assist in eliminating the cause of the trouble.

THE CHAIRMAN: At the request of Council?

HIS WORSHIP MAYOR DEWART: Yes, at the request of Council.



MR. ELLIOTT: When we were in the town of New Toronto, not so long ago, they have an inspector. It is a very industrialized town, probably the most so in the province of Ontario, and they have their own inspector, and yet one of the greatest offenders was the Campbell Soup Company, but through the efforts of the inspector, and the knowledge they have gained from different industries across the country, they are spending about \$250,000 to eliminate a problem which was affecting the town of New Toronto.

There is one case of an inspector being able to clear up the problem within a municipality.

If you want first-hand opinions, you can get them from the inspector of that town. They have a most efficient organization for a small town, in fact, I think one of the most efficient in Ontario.

THE CHAIRMAN: The suggestion was that Mr. Barry could supply an officer of that kind.

MR. OUTRAM: I would not like the impression to be left that nothing is being done. When a complaint is received, a letter is sent over my signature to the Mayor and the person complained against, and as far as industries are concerned, we have had excellent co-operation. I never heard of the complaint mentioned tonight. But I do know that



some of our industries will revise their heating systems and power plants, and they have gone to considerable expense to correct the faults.

I might say that some of our chief offenders are the churches, the Y.M.C.A., the Y.W.C.A., the schools, and some of the particular faults are due to the economic factor. They know of the fault.

I can name thirty or forty places -- smaller places of that nature -- about which we get complaints, but they tell me they are economically unable to correct the faults.

As far as industry is concerned, we have had very good co-operation.

---The witness retired.

K E N N E T H     D R A I N,

a resident of Peterborough, Ontario, appearing before the Committee, but not being sworn, deposes and says:

BY THE CHAIRMAN:

Q.        You are speaking as a citizen?

A.        Yes. References have been made as to the corrective measures taken, and I think they are rather extravagant.

I believe reference was made to the Cadillac Company, which spent a couple of million dollars,





and another company was re-built at a cost of \$250,000. Those are rather large expenditures.

Has this Committee any general idea of what corrective expenditures would be required in rectifying the average industry? Have you any average, across-the-board figures to submit, as to the cost of correcting the nuisance?

THE CHAIRMAN: I think if you could supply us with the name of an industry, we could probably give you a rough idea of what it would cost.

THE WITNESS: I am rather reluctant to mention names --

THE CHAIRMAN: This is a very informal gathering.

THE WITNESS: In this case, it is the Ovaltine Company.

BY THE CHAIRMAN:

Q. They are bothering your home?

A. Yes, they are, within a radius of a block and a half.

I directed a letter to Alderman Holt as to correcting that fault, but the soot and ash drops down, but I think possibly that industry, when Mrs. Holt has approached them, is trying to co-operate with the officer.



THE CHAIRMAN: We found a figure of about 5 percent. of the capital cost of an organization is a fair average to use for air pollution control equipment. Some can "get by" with 2 percent., and we have spoken with some who have spent as much as 15 percent.

I would say that probably 5 percent. of the capital cost of an organization would do the trick.

Each industry has its own particular problem, and it would take<sup>a</sup> technical expert and engineer to go in, to really tell them what it would cost. That figure is not unreasonable.

We have mentioned some rather large figures here tonight, but the average company does not charge up all its total capital costs.

We were in Ottawa last week, and we were endeavouring to see hon. Mr. Harris, but he was not available. However, we had a talk with hon. Paul Martin, the Minister of Health and Welfare, who is very sympathetic toward the whole problem.

However, we wanted to see hon. Mr. Harris to get his views on the immediate removal of the cost for equipment for air pollution and smoke, from their taxes.



We were not able to see hon. Mr. Harris on that point, but we still think it is a good suggestion.

I would say, in answer to your question, about 5 percent.

THE WITNESS: One other question, in connection with fuels: can you offer any advice as to whether the cost of actually burning anthracite, as opposed to boiler coal or soft coal, is excessive in the operation of an average industry? Is the soft coal preferable for quick firing?

THE CHAIRMAN: I think I might answer that in this way; if you had soft coal, with the proper equipment to get complete combustion, it is probably cheaper to burn, than anthracite. I may be wrong, and if I am, I stand to be corrected.

I believe there are some coal men in the audience. Perhaps we had better hear from them. If you have proper equipment, I do not think there is much difference in the cost.

What about that, Mr. coal men? Would you like to say a word about it? (No response).

MR. MURDOCH: While we are finding that out, may I say that I think it was pointed out to us that the soft coal interests in the United States have research engineers who admitted to us that so many of





the users of their soft coal were not using it properly, and it was their job to send their engineers out to industry to show them how to use the fuel properly. They recognize the problem, and are working on it, and I think the more people who are made familiar with this problem, the better it will be.

I would point out if the Ovaltine Company had a truck, and something of value dropped off, and you picked it up without them knowing about it, if you kept it you could probably be charged if you knew where it came from, and I was wondering if you should not "Hoover" your porches, and collect all sorts of dirt, and put it into a bag, and walk into their office, and dump it on the clean floor, and say, "This is yours; I do not know whether you want it or not, but we do not want it". That would sort of dramatize it.

ALDERMAN HOLT: In fairness to the A. Wander Company, manufacturers of Ovaltine, may I say that I have been in touch with Mr. Goldsmith, and he is one who has been most co-operative. On one occasion, when he was out of the city, I spoke to the engineer myself, the last time we had a call there.

I believe this particular engineer is a member of the Power Institute, and they were going to



try to work out a solution of their problem.

I was glad to hear Mr. Drain say there was an abatement of the smoke.

I was going to ask you, is there any particular standard for chimney sizes, with regard to pipes, and so on?

We had a complaint last week, and it was to the effect that the chimney was too small, and too near the roof, for the smoke to go straight up. Could that have any bearing?

THE CHAIRMAN: It is important, but there are no regulations, as far as chimneys are concerned. It is probably something the Committee will consider in its final report and recommendations.

The highest chimney in the country is the new one at Sudbury, which is 620 feet high, which the International Nickel Company just built, and I think the St. Lawrence storage people in the Toronto area have just built a new chimney 300 or 400 feet high. ... Some people think that high chimneys are not really an answer to the problem, that they are just sending the stuff farther afield.

I was interested to note, when we were in Sudbury, that the sulphur fumes from the nickel plant were damaging crops, and the farmers were a bit annoyed,



in that district.

They had two stacks, which I think are about 350 feet high, and they were damaging certain farms, so they put up one 620 feet high, and all they did was to hit the other farms further along the line.

There has been some consideration given to the matter of stacks, and how high or low they should be, depending on the type of industry.

There are no regulations right now for that.

MR. THOMAS (Oshawa): Further to that question; perhaps the regulations were not enforced as we would have liked them to be in years gone by, but when any new building goes up, does not your building supervisor have some supervision over it?

ALDERMAN HOLT: This just came to me about two days ago, and I have not had an opportunity of investigating it further. But I was wondering if there was any standard size for chimneys fixed by regulation.

THE CHAIRMAN: Our Secretary (Doctor Evis) just reminded me that on our visit to New York, we visited the New York University Laboratory, where they are conducting studies on air pollution. They have a wind tunnel there, I think it is about the only one of its kind in the country, and they make





a model of proposed plans, and they vary the types of chimneys, in regard to height, and so on.

They did an experiment for a plant up in the Windsor area. I think it was the Hydro plant.

Anybody is at liberty to contact this New York University Laboratory, with a problem, and they will look into it, and advise on it, and advise what the stacks should be, having regard to the type of industry.

ALDERMAN HOLT: That is the New York University --

DOCTOR EVIS (Secretary): It was Doctor Strom, of the New York University.

There are no standards for chimneys, because a suitable chimney in one location, might be very unsuitable in another location. It is an individual-boiler problem.

MR. DRAIN: What I had in mind was Los Angeles, where they have a very serious problem.

DOCTOR EVIS (Secretary): There is no problem from smoke in Los Angeles. They have smoke; no doubt about that. Their problem is more advanced, which they will have, even after they clean up the smoke situation.



MR. DRAIN: In the low areas, the tendency is for fumes and smoke to settle down over the lower areas more than the higher parts of the city.

In your investigations, there has been no way to control that chimney feature, other than by the type of stack equipment which is installed?

THE CHAIRMAN: The only way to control it is to reduce it.

The hon. member for Brantford has just reminded me that the Federal government is taking a great interest in the matter of air pollution in the Department of Health and Welfare. There is Dr. Morris Katz, who is an acknowledged expert in Canada and the United States on matters of air pollution and smoke control. They are most co-operative, and they have done some real jobs for various provinces.

I think one problem they had was in British Columbia, at the Trail smelter. It was with the help of the Federal authorities that they were able to do something there.

They are now studying the proposed International Nickel plant in northern Manitoba.

They are very interested in the work of this Committee, and we can count on them for assistance.



As a matter of fact, we have invited Doctor Katz to come before us when we write our final report. He has a great deal of scientific and technical information which is available to everybody, and we will certainly take advantage of that.

Are there any other questions upon any matter in which we may be able to help you?

MR. WEST: This matter about which I am complaining is fairly new. I think the problem of smoke control should have been brought up when they were applying for a permit to build in the early stages, which would have saved them a great deal of money, and saved people a great deal of grief.

THE CHAIRMAN: That is right, Mr. West.

MR. OUTRAM: The plant was there long before the house in which Mr. West is living was there. The chimney stack about which he is complaining has been there for over ten years.

THE CHAIRMAN: As I said earlier, generally speaking, if we can get in a situation where we can advise new industries, before the erection of their buildings, as to the type of air pollution and air pollution and smoke control equipment to instal, it is much more effective, and costs less money than if installed after the building is erected.





We have already had discussions with our own Department of Planning and Development in that regard.

ALDERMAN HOLT: One of the suggestions which came from a Power Institute member, was that a certain part on the discharge fumes, and so forth, should be included in the Building Code. I have it here. I will not read it, but it was their suggestion that it could be included in the Building Code, as to what kind of equipment was to be installed.

THE CHAIRMAN: That is a good suggestion.

MR. MURDOCH: I think this Committee has already gone on record amongst ourselves to the effect that the Department of Labour should more or less pass on all plans for industrial and commercial buildings, and should be brought into the picture, as to the type of equipment which might be used to control smoke and air pollution.

MR. THOMAS (Oshawa): In some cities we visited in the United States, where they had a very efficient air pollution Board set up, if anybody applied for a building permit, the building had to be approved by the air pollution Board, before the plans were approved by the building inspector.

I think that is something for the Committee



to think about, not only from the standpoint of air pollution, but also from the standpoint of the safety of the workers involved. There is a very close tie-up between the three of them on that.

MR. DRAIN: There is one other thing in my mind. Basically, in the nature of air pollution equipment, is it just a matter of smoke or atomizing consumption, or is it a matter of proper combustion in the furnace itself? Just how is this matter of elimination actually done?

THE CHAIRMAN: Perhaps that question can be answered by our technical advisor. Doctor Evis, would you care to answer that?

DOCTOR EVIS (Secretary): That is a difficult question to answer, mainly because there are hundreds of methods used, depending on the particular problem.

If it is an electro-static system, which precipitates certain dust which cannot be caught, then your thermo-precipitators will be required. They are what are called "cyclones", which throw the dust and soot out by centrifugal force. They have scrubbers, which are around the system, and which wash the effluent with water, and they have other methods of improving the combustion at the source. It depends on the problem, whether you are trying



to clean out the fly-ash and soot from burning coal, or whether you are trying to collect cement dust or sulphur dioxide, or some other case of lead fumes, for example.

MR. DRAIN: Basically, I think our problem is heavy effluent. Is it centrifugal equipment which is used there?

DOCTOR EVIS (Secretary): Yes, they use that basically, If it is a combustion problem, you should concentrate on getting as complete combustion as possible.

MR. DRAIN: The effluent represents incomplete combustion?

DOCTOR EVIS (Secretary): That is right. All that represents waste.

MR. MURDOCH: There is one plant in New Toronto which installed them.

THE CHAIRMAN: You are an engineer, Mr. Barry?

MR. BARRY: A steam engineer.

THE CHAIRMAN: The Committee is of the opinion that the reason for the fly-ash and dirt is faulty combustion. Would you like to confirm that particular theory?

MR. BARRY: I am sure it is true. There is also the question of different types of burning equipment.





Fly-ash is so fine, it would not settle down, unless some special equipment is used.

Referring to the Toronto city by-law which demands dust collectors, I think that unless a collector is installed, there will always be trouble.

THE CHAIRMAN: Do you think it would be a good idea to have the same thing in your law?

MR. BARRY: At the time we suggested it be included in the city's building by-law.

THE CHAIRMAN: You have it in your building by-law, but it will not be compulsory?

MR. BARRY: No; we just recommended it. They demand it in Toronto, before the building is erected.

THE CHAIRMAN: You say if the proper equipment is installed, and proper combustion is obtained, no dirt or fly-ash --

MR. BARRY: I think the most efficient one is about 98 percent.

THE CHAIRMAN: You can hardly beat that. The Committee has found that the problem can be handled. Equipment is available today.

MR. BARRY: Yes. I agree with the statement that the cost of installing the equipment at a later date rather than during the initial stages, is



considerably more. It is away out of proportion.

MR. DRAIN: This equipment takes up a considerable amount of room?

ALDERMAN HOLT: They told us they would have to add so much to their building, to hold the equipment.

MR. DRAIN: Yes. They were making enquiries about that. They said they would have to have room for the installation.

THE CHAIRMAN: I think, generally speaking, you are on the right track, Alderman Holt, to get something done. I think the general impression is that industry in this area is co-operating?

ALDERMAN HOLT: Oh, definitely.

THE CHAIRMAN: I think the mere fact that we get so few citizens complaining is an indication that, generally speaking, they are pretty well satisfied with it. If they are not, they should be here.

If you can follow that co-operation through, and set up a good, strong committee, comprised of industry in your area, and get a good law, and get Mr. Barry to help with the inspection services, you are on the right track toward some effective measures.

ALDERMAN HOLT: You mentioned we should have



an enforcement officer on a full-time basis? Do you think that to be absolutely necessary in starting off?

THE CHAIRMAN: That depends. How many complaints did you have last week?

ALDERMAN HOLT: Two.

THE CHAIRMAN: You do not need a full-time man for them. If the citizens found out they had an inspector, you might get more calls.

ALDERMAN HOLT: I would not doubt that, because I think we are just bringing it to their attention now, as to what we are trying to do.

THE CHAIRMAN: I think it is only fair that you should, because we are all long-suffering human beings -- all of us. We will all stay until the last dog is hung. That is human nature.

If you people take the lead, and say, "We are sick and tired of this mess; let us do something about it", you will get the whole "bunch" on the band wagon, and will get some action, and if it comes from the voters, you know it will be all right.

ALDERMAN HOLT: From working with other cities, have you any knowledge as to the remuneration an enforcement officer should receive, say on a per diem basis, or a monthly basis -- so we would have





something upon which to work.

THE CHAIRMAN: What is that fellow paid in Windsor?

MR. MURDOCH: Mr. Boyle?

THE CHAIRMAN: Yes.

MR. MURDOCH: I think about \$5,000. a year. He is concerned with the problem of the ships on the river there, too.

ALDERMAN HOLT: Yes, but Windsor is a much larger place. They have a much greater problem.

THE CHAIRMAN: I do not think it would be hard to arrive at something.

ALDERMAN HOLT: Has any thought been given by the Select Committee as far as subsidizing smaller industries is concerned, where it is required they instal smoke abatement equipment?

There are industries, I presume, where it would work considerable hardship to compel them to instal this, and yet they think they should have it.

Has any thought been given to subsidization?

HON. MR. SCOTT: By whom?

ALDERMAN HOLT: By the province.

THE CHAIRMAN: As I said when we began, Alderman Holt, what we are saying here is not necessarily what will be in our final report, and



there is no point in sitting here as a Committee and not telling you what we think, but suggesting you wait for the final report. I do not believe in that.

This proves, as a matter of fact, from the many questions asked here, the need for some body at provincial level, to which the municipalities can go and ask these questions, and secure the advice they need, technical, scientific and financial, if necessary.

I think that is an answer to your question as regards subsidization. When we are speaking about funds, we have to go to the hon. Ministers to secure the money.

MR. MORNINGSTAR: I think you answered that when you said you were trying to get a commitment from the hon. Minister of Finance in regard to not paying taxes on this equipment.

ALDERMAN HOLT: I was working around another angle.

THE CHAIRMAN: Those two angles will be considered.

DOCTOR EVIS (Secretary): The municipality might not increase the assessment on the property, when the value of the property is increased by, say,



\$100,000 worth of air pollution equipment.

MR. OUTRAM: That is not assessable, anyway. Equipment is not assessable.

THE CHAIRMAN: That is something which is under consideration, very definitely.

MR. DRAIN: Has this Committee run into a case where there has been an air pollution committee set up, and worked out an educational programme which has been adopted in these cities? Has there been any effort in that respect, in the cities where air pollution committees are already set up? Is there a definite educational programme?

THE CHAIRMAN: Very definitely. In the city of Los Angeles, they have a Public Relations Officer, with a staff of five or six, and it is their job to inform the public as to the situation.

I think we were told last year that the group made 200 or 300 public addresses to church groups, service clubs, manufacturing groups, and others, telling them about the problem, seeking their advice, and allowing them to ask questions. It is a full-time job to tell the public about it.

This is the first time a Committee of this kind has been set up in the Dominion of Canada. These are some of the things we are studying and considering.





I can only say that many members of the Committee have made public appearances throughout the province "on their own", and discussed the problem with local clubs, and that is informing the public first-hand, is it not?

MR. DRAIN: I think a great deal can be accomplished by proper publicity?

THE CHAIRMAN: Very definitely.

ALDERMAN HOLT: The totemeter is not really a piece of abatement equipment?

THE CHAIRMAN: No.

ALDERMAN HOLT: It is just metering?

THE CHAIRMAN: That is right.

ALDERMAN HOLT: It costs less, anyway. I think it runs around \$800.

MR. ROBSON: (City Health Inspector, Peterborough): I worked with smoke pollution committees previous to coming to Canada.

THE CHAIRMAN: You are from Scotland, I take it?

MR. ROBSON: Yes, and I do not like to waste even smoke.

I used a fixed-shutter camera for inspection purposes, and also the Ringelmann Chart. There is sufficient evidence there, because you have two



opinions.

Regarding detection: you receive a complaint, and carry out a test, and wait two or three days, and then go back to the industry, when the opportunity presents itself, and wait for a four-hour period, whichever you felt would be more conclusive, and then you carry on two or three days after that.

THE CHAIRMAN: Without saying anything more, why have you not a smoke abatement officer right here in Peterborough?

MR. ROBSON: I felt it was perhaps better just to mention it is not an easy job to secure anything definite. Public sympathy is always with industry.

THE CHAIRMAN: Is it?

MR. ROBSON: I think so. However, I appreciate it must be done. Also, from the public health standpoint, I think the fumes and noxious gases should also be included, and the enforcement is not a thing which should be lightly done.

THE CHAIRMAN: Would you like to give us some ideas on enforcement? I can tell you quite frankly that enforcement of the law is giving this Committee quite a bit of concern. It will be one of the big problems in any effective air pollution



and smoke control law.

Can you give us some observations, as to how they do it in good, old Scotland?

MR. ROBSON: You have to produce evidence satisfactory to the person on the Bench that you have noted excessive smoke emissions over a certain period of time, and that is produced by the Ringelmann chart, and also by pictures taken at "the scene of the crime" as it were.

Regarding the height of chimneys; we use the chromometer to guage the height of a chimney. The height of a chimney is taken into account, as I recall it.

But things have improved in recent times. They do the examining of smoke better than in the old days.

Many of these chimneys were from hand-fired boilers. There were no stokers, or anything, and unless the firing was done properly, there was smoke.

THE CHAIRMAN: How long have you been here?

MR. ROBSON: Four years.

THE CHAIRMAN: Was it better when you left than at the time you were there?

MR. ROBSON: Naturally. They do not want to waste anything.





THE CHAIRMAN: It seems to me, Your Worship, that you have one solution to your problem right here.

HIS WORSHIP MAYOR DEWART: Mr. Robson is a newcomer, and has only been here for the last few months.

As you know, in the summer time, smoke abatement is not a very serious problem. I am glad to know he has had this experience.

MR. MURDOCH: The smoke abatement officer in Windsor obtained a conviction against a steamship company for a boat which was tied up at one of the docks, emitting black smoke. They took the company into court and obtained a conviction. That was probably one of the first convictions for that in Ontario. We have not had too many in Ontario.

THE CHAIRMAN: Had you any exemptions in your law in Scotland?

MR. ROBSON: It was only recently that the Act was such that prosecutions could be taken under it. Before that, the law was very leniently applied, and industry was treated --

THE CHAIRMAN: Did they co-operate to reduce the smoke problem?

MR. ROBSON: Oh, yes.



THE CHAIRMAN: You did not have to apply the letter of the law?

MR. ROBSON: No. They complied in some instances. For instances, in regard to hand-firing; technical services show that it can be scientifically done, or it can just be done in the old way.

With hand-firing, if a fireman over-stoked at one period, he got the smoke, and if he did not stoke it properly, he had quite a good deal of bad emission.

The centrifugal equipment of modern industry is sometimes not as efficient as it might be, but generally it <sup>is</sup> up to standard. We have had trouble from working boilers overtime, and using improper fuel, sometimes.

I do not know what it will be like under the legislation set up here, but I know that anybody who has much to do with it, knows that prosecutions are not used too often.

Incidentally, somebody mentioned the city of London. I remember particularly that 80 percent of their pollution came from domestic fireplaces, and we do not burn much coal here in fireplaces. It is largely an industrial problem.

THE CHAIRMAN: That is very interesting. How



long did it take them to pass a good law in Scotland?  
How long were you working on it over there?

MR. ROBSON: I think there was a Smoke  
Pollution Act and an amendment. : It was quite  
a number of years before it came into effect.

THE CHAIRMAN: I understand they have been  
working on the problem in England for about 350  
years.

MR. ROBSON: That is true, and it is  
aggravated by the amount of domestic coal used. The  
fireplaces are very inefficient.

THE CHAIRMAN: I want to assure His Worship  
the Mayor and you, ladies and gentlemen, that this  
Committee will not be working on this matter that  
long.

HON. MR. SCOTT: Not this Committee.

THE CHAIRMAN: Is there anything else you  
would like to say, Alderman Holt?

ALDERMAN HOLT: No, I think I have had  
my say. Probably, when we have a meeting, something  
else will come up.

MR. ROBSON: May I ask a question?

THE CHAIRMAN: Yes, certainly.

MR. ROBSON: Regarding the seacoast cities,  
such as Los Angeles, for instance; what did the





Committee find out about the relative humidity in a city right on the coast, as compared with one farther inland?

DOCTOR EVIS (Secretary): The higher the humidity, the greater the danger of creating "smog" conditions, and the total meteorological picture is very important when you have a temperature inversion, which means a layer of hot air at, say, 600 or 1000 feet above the city, which prevents the normal rise of the city's polluted air, and drops it over the city, and when the humidity is higher, it just accentuates the bad effects of the temperature inversion and the pollutants.

If you take a noxious gas like sulphur dioxide or sulphur trioxide, with something like this heavy humidity, it would turn it into an acid, which makes the effects worse.

MR. ROBSON: An inland city is not so prone to the combined effect, as one of the coast cities?

DOCTOR EVIS (Secretary): I think that is true. Our cities are practically seacoast cities, for instance, those on the Great Lakes.

THE CHAIRMAN: We had a situation in Toronto, and probably up around Hamilton, and perhaps around Windsor, in the last week or ten days, where we had



a very severe fog for the greater part of a day,<sup>9</sup> and you could actually see, in the area of the railroad yards, the smoke coming out, and in some cases the fog was just at the level of the stacks, and this stuff just hung right in there.

There is no doubt that cities near bodies of water ~~are~~ more conducive to fog, and that the surrounding hills are much more liable to bad health effects of pollution, than the cities inland, on more level ground.

MR. DRAIN: I think that is where your education would have a very good effect, from the fact that industry might be advised to take special precautions on days which are excessively humid.

THE CHAIRMAN: In Los Angeles, they have green and red days, and it is reported in the newspapers, that it is a "green" day or a "red" day, and when they have a bad "smog" certain industries are not operating, but if it is a "green day", it is a little better, and everybody carries on in a normal way.

That will be found right on the front page of the papers every day.

DOCTOR EVIS (Secretary): When the situation is severe, they have the power to prevent people from



driving their own automobiles, because an automobile is a big contributor to air pollution.

ALDERMAN COMSTOCK: May I ask a question in regard to the burning of fuel oil?

THE CHAIRMAN: Fuel-oil burning definitely causes pollution. I could compare it with a diesel locomotive. You can see the smoke nearly as much as you can with the old coal burners, and you can certainly smell it. If you get behind a diesel truck, as our member from Hamilton does, going up the Hamilton mountain, he can tell you it is very bad.

I think what we have to deal with in Ontario is smoke and fly-ash, soot and dirt, which you can see, and which everybody understands, and then move on to the area of the pollution you cannot see, but which scientific investigation indicates is really more dangerous to health than that which you

ALDERMAN COMSTOCK: One of our worst areas is our downtown commercial area, where the smoke hangs quite heavily at times, and I was wondering if conversion to oil in those buildings, which would not require a very large capital cost, would be an answer to that problem.





THE CHAIRMAN: It certainly would be an answer in the right direction, according to the engineers. I think Mr. Barry can back me up on this, when I say I think it is considered to be the worst offender, that is oil, and that natural gas is the least offensive.

Perhaps some of the industrial people might not agree, but that is the way some of the experts line them up. Any change from incomplete combustion of coal is all to the good.

Is there anything else, ladies and gentlemen? I think you are to be congratulated on having two lady Aldermen. Many places have one, but never two.

HIS WORSHIP MAYOR DEWART: Peterborough is ahead, in most things.

THE CHAIRMAN: I think we can adjourn this meeting, friends.

I hope what we have said here tonight will be helpful to you in your problem, Mr. Mayor. It is certainly something which cannot be studied and finished over night. It is a long-range programme. It is something about which we need to know a great deal, and is something upon which we should move intelligently.

However, when we are dealing with great



industries in our province, we do not want to put anybody out of business. We just want to co-operate.

I think with the strong co-operation of industry in Ontario, in addition to a good, sensible, realistic law, or perhaps a combination of those things, will bring about the kind of situation we want in this province.

It is through meetings like this and others that we can make some progress.

We appreciate your coming tonight, Your Worship, and we appreciate having the Aldermen in charge of the committee here, and the many members of your Council, and also the private citizens, who have lodged their complaints. It is fine to see these people "on the job".

Last, but not least, we are highly honoured to have with us your own member, and our colleague, hon. Mr. Harold Scott.

If there is nothing further, we will adjourn.

HIS WORSHIP MAYOR DEWART: We appreciate your visiting the city. We have with us in the audience this evening, some representatives of some of our principal industries, and I am sure they have followed the discussions with a great deal of



interest.

All we can wish for is that your visits to the various cities will result in better legislation for all of us.

ALDERMAN HOLT: I want to extend appreciation on behalf of Council for your coming to Peterborough, and we hope you may come soon again, when we will have some more problems to discuss with you.

THE CHAIRMAN: Thank you very much. This meeting is adjourned.

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---Whereupon, at 10:05 p.m., the further proceedings of this Committee adjourned until Thursday, November 15th, 1956, to reconvene in the city of Brockville.

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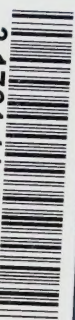












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